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IRON TRADE REVIEW

Registered U. S. Patent Office

CLEVELAND, O., MAY 5, 1927

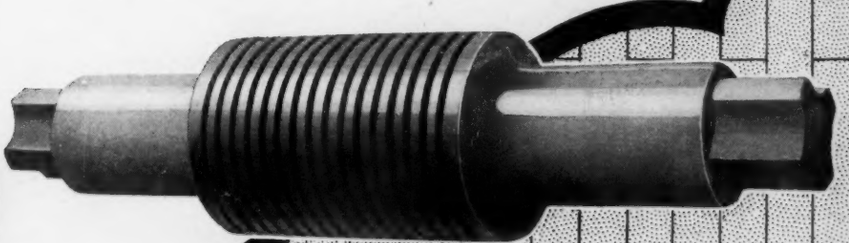
ADAMITE

15,250 Tons per Dressing!

An actual performance record made in a rod mill using Chilled Adamite Finishing Rolls, showed an average output of 15,250 tons per dressing. Chilled Iron rolls on same mill gave an average of only 1,850 tons per dressing.

Chilled Adamite Rolls not only showed greatly increased tonnage, but the reduction in diameter required for proper dressing was only about one-half that required in the case of Chilled Iron.

Specify Chilled Adamite Rolls.



ADAMITE ROLLS AND HEAVY DUTY CASTINGS

Sole Manufacturers { Mackintosh-Hemphill Co. / United Engineering & Foundry Co. } *Pittsburgh, Pa.*

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When you buy "NACCO" hand picked coals you receive the choice of the field, scientifically prepared to yield maximum Btu values and lowest cost of converting water into steam.

Let these tested and approved coals solve YOUR fuel problems:

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from the Principal Bituminous Fields

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THE NORTH AMERICAN COAL CORPORATION

Wabash Bldg. Pittsburgh, Pa.
Canada Coal Ltd., Toronto, Sault Ste. Marie and Montreal
No. 1 Broadway New York City

UNION TRUST BLDG. CLEVELAND, OHIO

AFFILIATED COMPANIES:
THE INLAND COAL & DOCK CO. Minneapolis and Duluth, Minn.
THE UNITED COAL & DOCK CO. Milwaukee, Wisconsin
NACCO STEAMSHIP LINE, INC. Cleveland, Ohio

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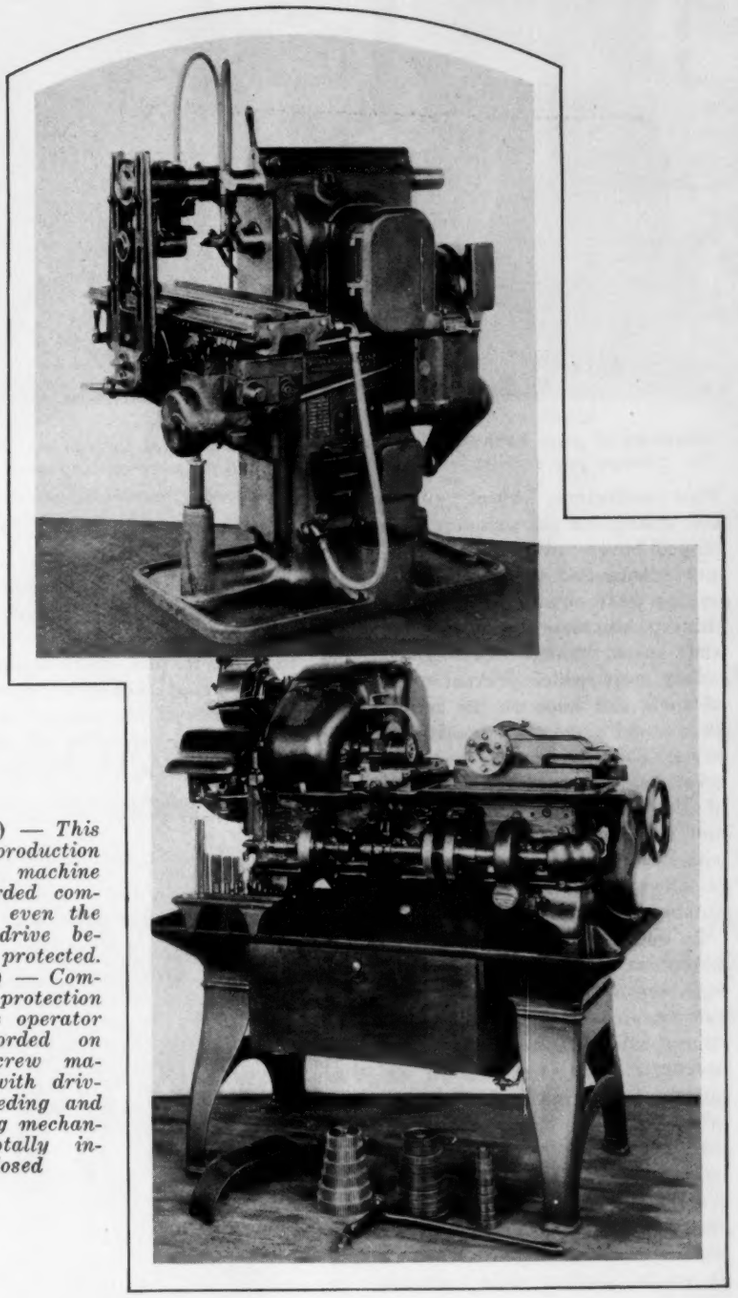
Doubling Machine Safety

Protection for Tools and Men



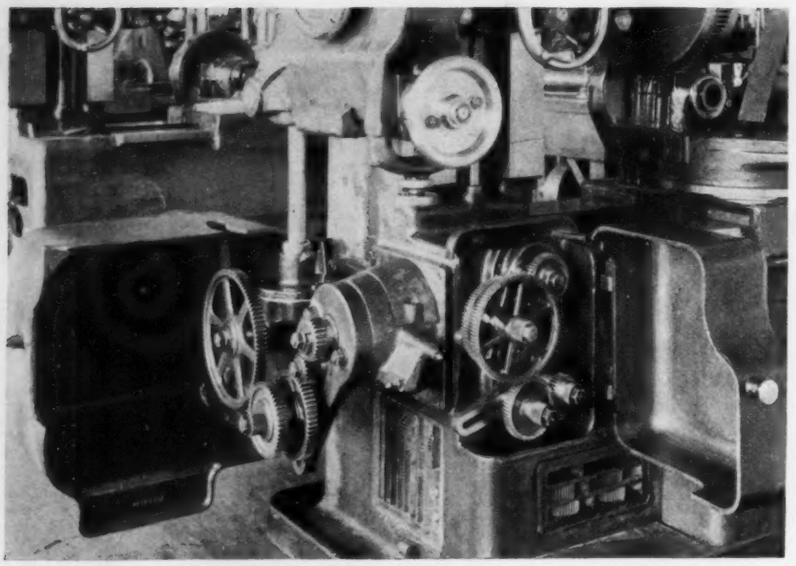
(Above) — This high production milling machine is guarded completely, even the pump drive being protected. (Right) — Complete protection for the operator is afforded on this screw machine with driving, feeding and indexing mechanism totally inclosed

IN THIS age of industrial speed, competition dictates that production be increased continually. More pieces per minute or hour—more work hours per machine—more machines per operator must be obtained. In the effort to secure an increased output to meet this demand, the safety and comfort of the primary element in this complex system, the operator of the machine, sometimes is overlooked.

Lurking dangers are left unprotected and not infrequently the operator, rushing under high-pressure orders, becomes careless or perhaps a little bit brain weary from the strain and falls a victim to the shortsightedness of the manufacturer of the machine which he is using. Open chains and sprockets; unguarded belts and pulleys; twisting, whirling, reciprocating parts free and inviting accident; widely separated controls; clumsy levers; unwieldy handwheels; these, and many more, constitute hazards and additional labor for the operator.

Manufacturers of machine tools realize fully the importance of safety and ease of operation and are giving thorough attention to the design and construction of their products. When new machines go into operation, their builders know that through painstaking effort the units represent maximum safety and efficiency. The accompanying illustrations show how one important machine tool builder has incorporated these features in the design of its products.

Guarding of all moving parts, insofar as is mechanically possible, is one of the features. All gears, sprockets, chains, cams, clutches, etc., and even the universal joints are either completely enclosed or are covered by a substantial guard. All handwheels are constructed so that they automatically disengage, thus preventing numerous possibilities for injury from a rapidly rotating handwheel when power feed is being employed.



Close-up of gear hobbing machine, showing substantial guards which cover the change gears. Similar guards are provided on gear cutting machines

Dust deflectors, wheel guards and belt guards on the grinding machines; hinged covers over the change gears and substantial guards for the belts on the gear cutting and hobbing machines; complete enclosure of feed and speed change mechanisms and safety stops which prevent over-travel of table and knee on the milling machines and a complete guarding of all cams, clutches, gears, etc., on the screw machines are a few examples of the many precautionary measures and safeguards which this prominent company incorporates in its machines in an effort to minimize the great number of industrial accidents.

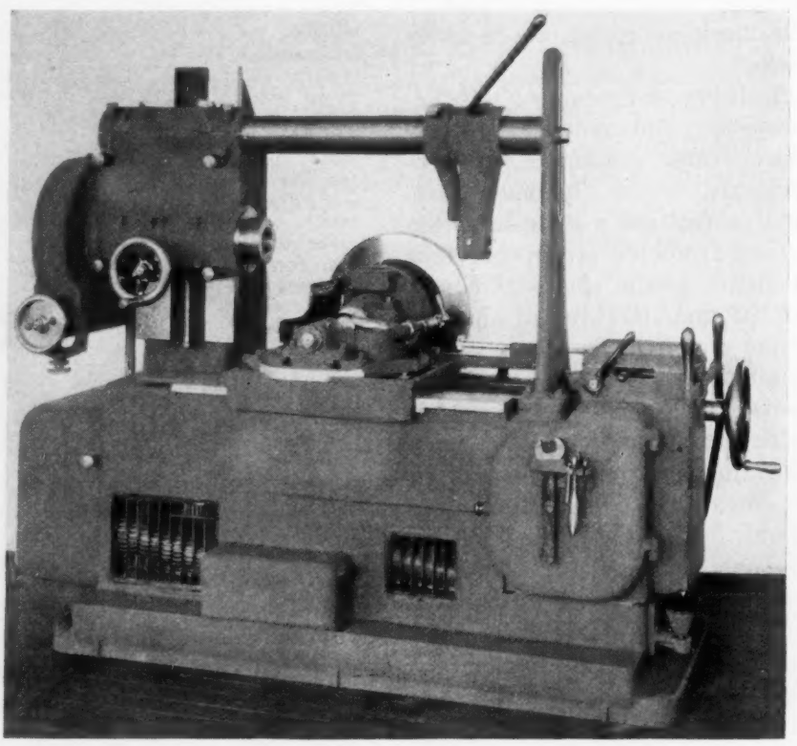
In addition to this, insofar as consistent with correct and efficient design, the operating controls have been concentrated at the front of the machines within immediate reach of the operator. This is a feature which is appreciated by both operator and executive in that it reduces and simplifies the movements of the former and increases and magnifies the production sheet of the latter. Care also has been taken in concentrating the controls to locate them in such a manner as not to interfere with each other or with the operator and also not to be in proximity to any form of danger.

Protection for the owner of the machine is provided through mechanical safeguards which are an integral part of the tool. By this is meant that the possibility of a loss of the original investment or a disruption of the production schedule and the resulting loss through accident within the machine is minimized by means of numerous devices and arrangements designed to protect the machine from itself, in other words, to curb machine suicide. Safety shearing pin, gears, sprockets and clutches, each having a load limit below that of the rest of the mechanism, actually do protect machines from themselves. These agencies eliminate the breaking or stripping of working parts when undue strain is imposed upon the machine and the time necessary to replace one of these, when compared to the amount of time formerly required to repair a tieup, seems small indeed.

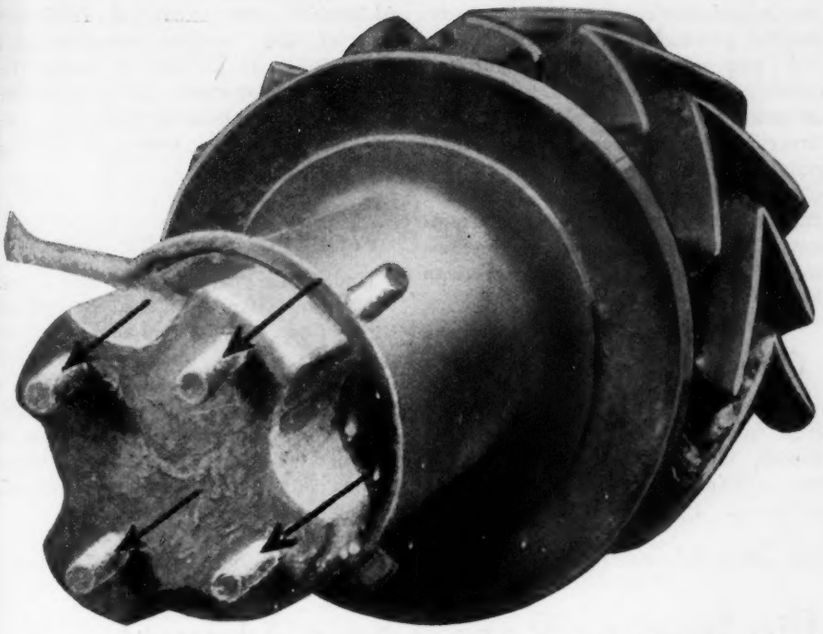
Idle time thus is reduced to a minimum as the job of replacing a broken safety gear, clutch or sheared pin is simple and is accomplished in a short time. Safety stops which operate automatically, in case the operator fails to set the trip dogs, constitute another mechanical agency by which the machine is prevented from doing serious damage to itself.

Likewise, there are numerous protective arrangements provided to reduce the effects of what might be called injurious outside agencies, such as abrasive dust and dirt, chips, excessive wear, etc. All bearing surfaces lending themselves to the collection of injurious matter are adequately guarded so that the accuracy of the machine is preserved. Complete and dependable lubrication of all parts needing oil also is assured, thus prolonging the life and precision of the machines.

MANUFACTURERS of machine tool equipment are taking into consideration more and more the factors of safety and convenience in developing new models. The accompanying article and illustrations, describing some of the more important considerations of the subject, is published through the courtesy of the Brown & Sharpe Mfg. Co., Providence, R. I.



A gear hobber, showing the method of guarding gears, bearings, index wheel, etc., and also illustrating the method of concentrating the operating controls at the front in such a position as to be free from danger



Four unmachined pods built up with thermit. With a pinion of this type in excess of 200,000 tons of steel was rolled

MILL PARTS ARE RECLAIMED BY NEW WELDING PROCESS

IN THE steel mill the welding process has now become so economical that reclamation departments are being organized in various plants. One large steel company employs a force of men for this work, using about 100,000 pounds of thermit per year. The work is done on all iron and steel sections including table rolls, rolling mill housings, blooming mill engine parts, crankshafts, connecting rods, charging peels, etc. Replacing the wear on wabblers also is accomplished, the metal added requiring no machining.

The new improved method of making the thermit weld, developed and patented after an extensive research and which has been in use during the past year, is an important economic factor in reclamation work. This new design enables a weld to be made with less than half the amount of material previously required and this, in turn, permits the use of smaller mold boxes, less molding material, quicker ramming of molds, less labor, and small crucibles.

The change in the crucible cost is an important item when it is realized that a crucible to contain a steel at 5000 degrees Fahr. must be carefully made; and, because most of the refractories dissolve to some extent in steel at this temperature, the highest grade dead-burned magnesite must be used. A crucible lining of this magnesite lasts in the case of small crucibles for 40 or 50 reactions, but in the case of large crucibles holding 600 or 700 pounds, the lining lasts for only four or five reactions. The new methods have made this crucible problem much less important because in the large welds, where two or more crucibles were used, only one now is necessary and where one large crucible previously was used, a much smaller one now can be used. The smaller crucible costs less at the outset and per reaction because of its longer life.

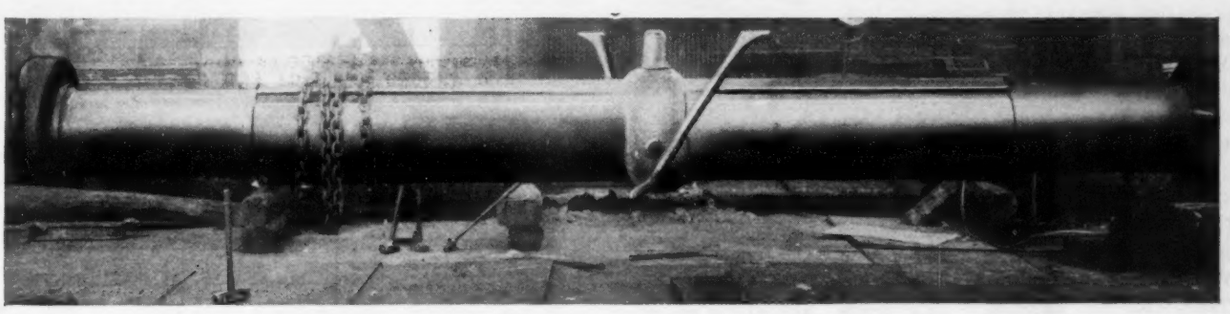
The saving by the new method over the old readily can be realized by comparing a typical welding operation on an 8-inch diameter shaft as executed by two methods:

	Old	New
Thermit required, pounds	155	65
Width, thermit steel collar, inches	7	4
Thickness, thermit steel collar, inches	1⅝	⅞
Diameter of riser, inches	4½	2

The difference in the final costs, which involve the cost of the welding material, the crucibles and the pounds of wax required in making the mold, shows a saving of approximately 60 per cent by the new method. This percentage does not include the items of the smaller amount of molding material used, less labor required and the time saved.

Adopts New Specification for Concrete Mix

A specification for proportioning concrete based on the water-cement ratio law of strength was adopted at the Chicago meeting of the engineering division of the American Railway association, March 8-10. This specification was prepared by the association's masonry committee of which C. C. Westfall, bridge engineer of the Illinois Central railroad, is chairman and Job Tuthill,



This blooming mill shaft, 26 inches diameter, was welded within a period of 48 hours

assistant chief engineer of the Pere Marquette railway, is vice chairman.

Adoption of the new specification marks abandonment of the 1:2:4 and other arbitrary mixes that have been in use for many years. Instead, the ratio of water to cement is specified and the proportions of sand and stone are left largely to the discretion of the engineer. According to this rule, the strength of concrete, within the limits of plastic, workable mixes is inversely proportional to the amount of water used. By applying this law, engineers can secure concrete of a specified strength within given limits. The new specification will become recommended standard practice for all railroads in the United States and Canada and will appear in the association's manual of recommended practice.

A new specification for portland cement also was accepted. This specification recently was adopted by the American Society for Testing Materials and was prepared by committee C-1. C. C. Westfall, J. J. Yates and M. Hirschthal, members of this committee also are members of the masonry committee of the American Railway association.

Ovens Use More Coal

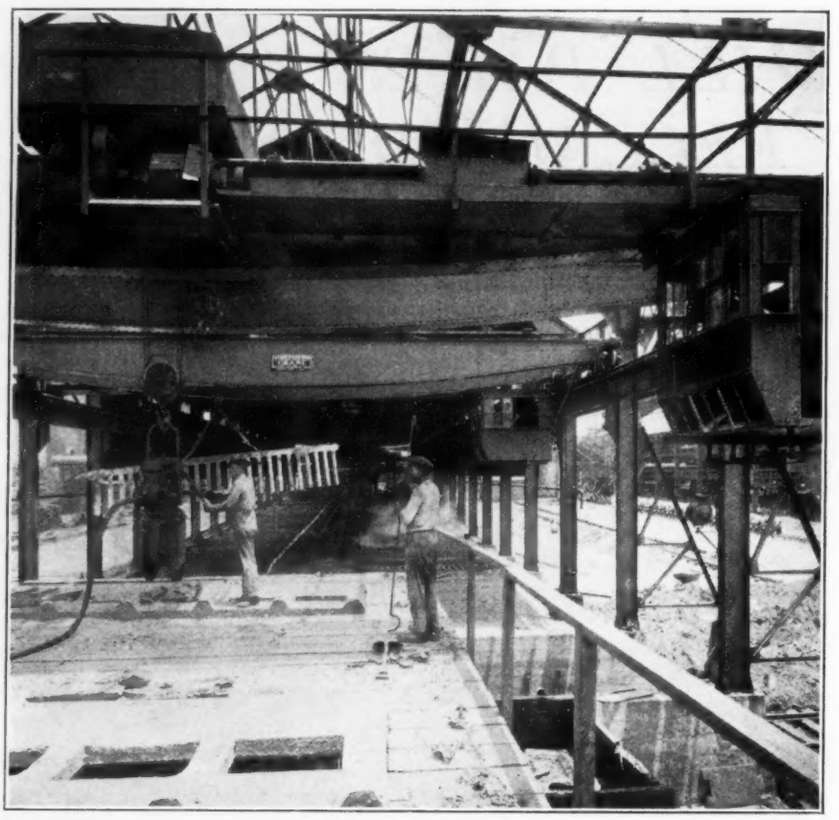
In making 56,036,000 net tons of coke in 1926 coking plants in the United States consumed 82,123,000 net tons of coal, states the bureau of mines. By-product plants charged 64,008,000 tons to make 44,550,000 tons of coke; beehive ovens charged 18,115,000 tons of coal to make 11,486,000 tons of coke. Total consumption by cokemakers in 1925 was 74,532,232 tons. The record is 85,028,018 tons in 1918.

Workers Buying Stock

Under this year's savings and stock ownership plan of the Bethlehem Steel Corp. 37,302 employes or 60 per cent of the total have applied for 72,034 shares of the corporation's 7 per cent preferred stock at $107 a share. This is the fourth year of the stock plan. In the last three years 35,000 employe stockholders have saved $8,000,000 under it.

Breaking Up Pig Iron at Rate Ton a Minute

BREAKING up sand cast pig iron at an average rate of a ton a minute is the record of a pig breaker at the plant of the Sloss-Sheffield Steel & Iron Co., Birmingham, Ala. At this plant, where the breaker was developed, the iron is cast in sand beds of two tons to a bed. The sow, or runner, feeds 20 pigs and this whole comb-shaped piece is carried to the breaker platform by a 10-ton crane. Here it is laid across a heavy cast iron grating and the Dovel-type breaker hammers it into pieces which drop into a car below. A lifting magnet later transfers this iron to storage or to another car for shipment.



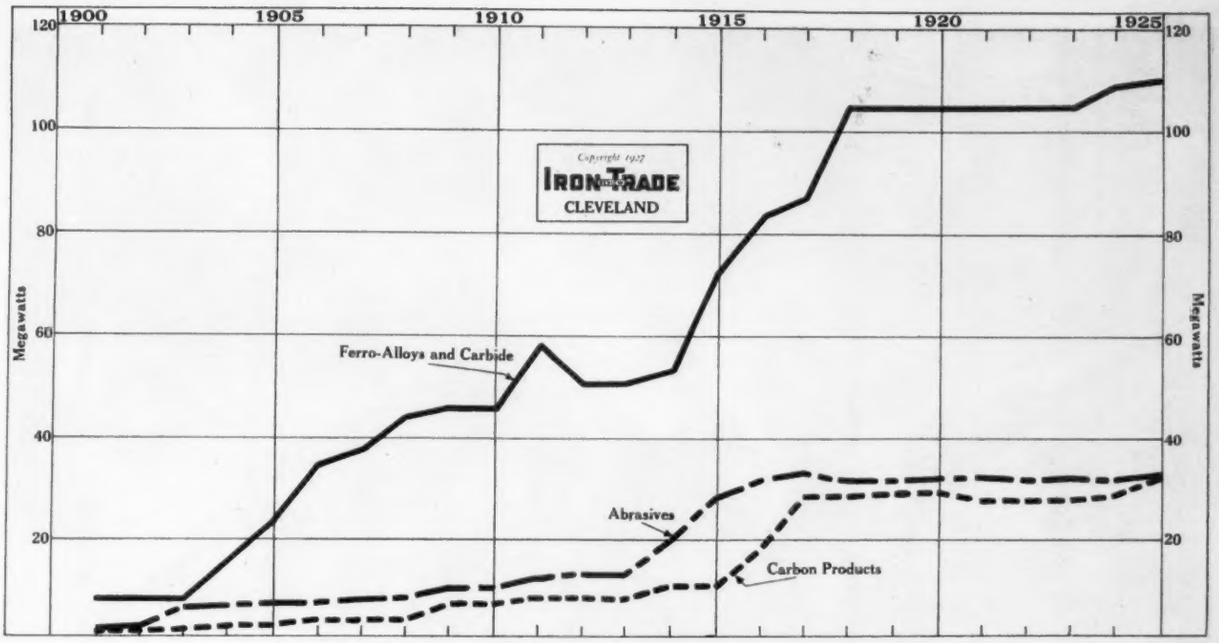
THIS PNEUMATIC PIG BREAKER KNOCKS OFF PIGS AND BREAKS UP THE SOW AT A RATE OF A TON A MINUTE

The pig breaker shown in the accompanying illustration, is a strong pneumatic hammer flexibly suspended from an overhead crane, also of 10-ton capacity. The crane operator moves the hammer over the iron to be broken and a workman on the platform operates an air valve to drop the air piston. The breaker strikes with terrific force at a rate of about 50 strokes per minute, at which rate an entire cast of 43 beds has been broken up in 45 minutes. The blows shake the sturdy frame of the breaker platform.

Obviously, the speed with which this outfit operates depends upon the ability of the crane operator to spot the breaker accurately above the iron. This ability, in turn, is dependent upon the accuracy of the crane control and the precision with which the crane can be handled. The crane controls supplied on the two cranes in service in each casting shed are the brains of the outfit. These controls, as well as the lifting magnets, were designed by the Electric Controller & Mfg. Co., Cleveland, and give the desired accuracy of control.

When the pig breaker is at work, the crane operator keeps the rack of the crane moving steadily, hesitating occasionally when a first blow has failed to do its work and stopping only while the other crane is placing a new comb to be broken.

The coating of iron sheets with tin was started in England about 1665. The process at the outset was not a commercial success and was soon abandoned.



Growth in consumption of electric power at Niagara Falls for three principal products

Electric Furnaces Show Marked Growth At Niagara Falls Since 1902

By F. A. J. FitzGerald

PRIOR to the year 1895, when hydroelectric service began in Niagara Falls, the commercial use of electric furnaces, in this country at least, was very small. The Cowles brothers had developed electric furnaces for the manufacture of certain alloys, especially aluminum bronze, in the previous decade of the nineteenth century, and at the beginning of the tenth decade Acheson was making silicon carbide in Monongahela, Pa., in furnaces of 90 kilowatts capacity. About this time also Willson and other well-known electric furnace pioneers were working on the commercial manufacture of calcium carbide. In 1895 Acheson began to manufacture silicon carbide in furnaces of 750 kilowatts capacity in Niagara Falls, and shortly afterward the production of calcium carbide and phosphorus began there; but it was not until the beginning of the present century that electric furnace ferroalloys, in any great quantity, were manufactured in this country.

An exhibit of the growth in the use of electric furnaces in Niagara Falls since 1902, when the American Electrochemical society came into existence, will serve to visualize the great progress that has been made in that particular department of electrochemistry, applying that term in the broad sense in which it is used in our organization. In 1902 the electric furnace was chiefly used in carrying out processes where temperatures were so high as to be either altogether above those commercially practicable with fuel, or at least too costly.

In preparing the exhibit, electric furnace processes have been divided, perhaps in rather an arbitrary way, into three groups:

1. *Abrasives.* A group which includes the production of silicon carbide and fused aluminous materials.

2. *Carbon Products.* Which includes the heating of carbonaceous materials in a temperature where the amorphous carbon is converted into its allotropic form, graphite, or calcining at a very high temperature, but short of that causing complete graphitization.

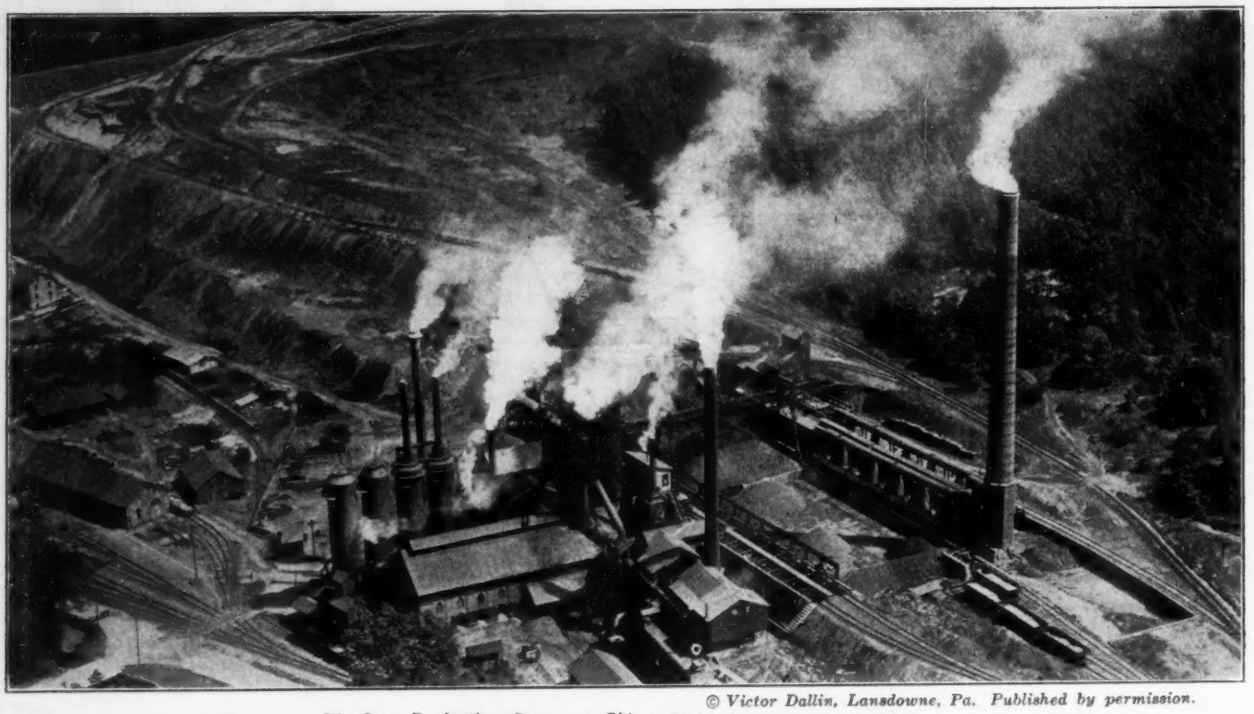
3. *Ferroalloys and calcium carbide.* Through the courtesy of the manufacturers of these various products, the electric furnace capacity available in each of these groups in Niagara Falls for every year from 1902 to 1926, inclusive, has been obtained, and the accompanying illustration shows the results of this inquiry.

This shows a remarkable growth in the use of electric furnaces in what looked on as their special field at the time of this society came into existence, that is, processes requiring temperatures higher than that readily reached in fuel-fired furnaces.

If similar figures were prepared iluustrating the growth of the electric furnace for other purposes which in 1902 were only in the early stages of development, such as steel manufacture and brass melting, or were not even considered seriously, such as heat treatment of steel, enameling and the generation of steam, the increase shown in their use would be far more marked.

In the next 25 years this growth will probably be quite as great as in the last quarter century, because not only will there be a great increase in the use of elecceric heat in these newer fields, but the electric furnace will be adapted to other manufacturing processes at present depending altogether or nearly altogether on fuel-fired furnaces, such as glass making and the firing of porcelain.

From a paper presented at the fifty-first general meeting of the American Electrochemical society at Philadelphia, April 28, 29 and 30, 1927. The author is electrical engineer, FitzGerald laboratories, Niagara Falls, N. Y.



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Pig Iron Production Ceases at Oldest Active Furnace Site in East

Historic Furnace and Iron Ore Properties Change Hands

Robesonia Ceases Operations After 134 Years—Bethlehem Acquires Its Interest in Cornwall Banks

BETHLEHEM STEEL CO. has acquired through an affiliated company the properties of the Robesonia Iron Co. These consist principally of the right to take ore from the famous Cornwall ore banks near Lebanon, Pa., and of the blast furnace at Robesonia, Pa. The furnace had been closed down prior to the transfer of the properties. It is to be dismantled. Thus is brought to an end the producing life of the oldest active furnace site in the East as of the present time. Pig iron, up to the blowing out of the furnace on April 22, had been produced at Robesonia for nearly 134 years without interruptions excepting at such times as relining or rebuilding of the furnaces was necessary.

The first pig iron was made at Robesonia by George Ege in October, 1793. He was a large landholder and the furnace was built on his property and was owned and operated by him until the time of his death in 1835. At that time the property was known as the Reading furnace, as the present town of Robesonia had not yet then come into existence. Then, as ever since, ore was obtained from the Cornwall deposit, 25 miles distant, and the fuel was charcoal from timber cut from Mr. Ege's land. Mr. Ege was interested in Charming Forge, located nearby, and much of the iron produced was shipped to this forge. The remainder was sold to foundries.

After 1835 the furnace passed through various hands, the names Klein, Seilzinger, McCrea, Porter and others being identified as owners. In 1845 the property was acquired by Robeson, Brooke & Co. and it was from Mr. Robeson that the town of Robesonia derived its name. The new firm immediately erected a new furnace of enlarged dimensions, capable of producing 40 to 50 tons of iron per week. It operated on charcoal and hot blast stoves were installed. This stack operated till 1854 and then was torn down to make way for a larger stack, having capacity of 250 tons per week. This also operated on anthracite fuel. Upon the death of Mr. Brooke in 1858, the firm name was changed to Robeson & White. In 1860, following the death of Mr. Robeson, the firm of White, Ferguson & Co. was formed. This firm changed its name to White & Ferguson in 1863 and later to Ferguson, White & Co., continuing to operate the furnace until 1885, when the Robesonia Iron Co., Ltd., was organized to take it over. The new firm immediately erected a new and greatly improved furnace, adding four firebrick stoves, new blowing engines and other improvements. This stack remained in service until 1914 when its was dismantled to make room for a new stack.

It is this stack which now is completing its active service at Robesonia. This furnace has been producing at the rate of about 75,000 tons of pig iron per year, including some foundry iron but mostly copper bearing low phosphorus iron, its entire output being obtained from ore from the Corn-

wall mine. In 1923 the name again was changed, and since that time the company has been known as the Robesonia Iron Co. Its officers, up to the acquisition of the company by the Bethlehem Steel Co., are: President, Hon. William C. Freeman, Pennsylvania state senator from Lebanon county, and of a historic family of Pennsylvania ironmasters; vice president, Allen Butler; vice president and general manager, Leonard C. Crewe; secretary and treasurer, Robert C. Lea. The directors include the officers and Jacques L. Vauclain.

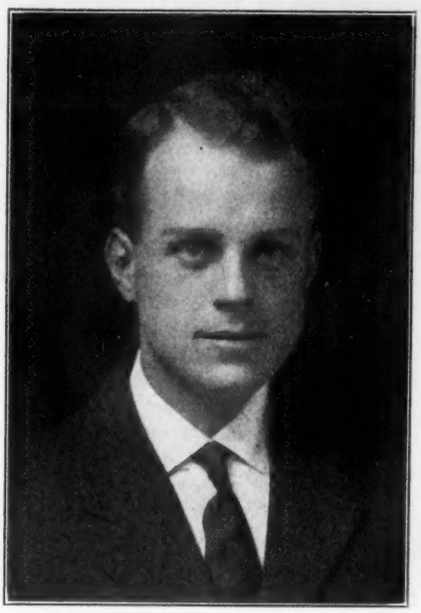
The outstanding figure identified with the Robesonia Iron Co.'s history in recent years is Robert C. Lea, head of Robert C. Lea & Co., Philadelphia, sales agents for the Robesonia iron. Mr. Lea for years has been one of the leading figures in the Eastern merchant pig iron industry and on numerous occasions has rendered important services to the industry. During the war he served as secretary of the committee which allocated low phosphorus iron under the authority of the War Industries board.

It was the situation in connection with the Cornwall iron ore bank which was the main factor in causing Bethlehem Steel Co. to acquire the Robesonia Iron Co. Some two years ago Bethlehem Steel Co. acquired all outstanding interests in the Cornwall bank, and the only incumbrance on its title was a provision in an old indenture made many years ago. Richard Peters Jr., of Robert C. Lea & Co., in an article published in 1920, referred to this indenture as follows:

"In 1786 Peter Grubb Jr., part owner of the Cornwall ore hills, which his ancestor had obtained by patent from William Penn, conveyed to Robert Coleman his interest in the properties with the following wording: 'Saving and excepting unto the said Peter Grubb Jr., his heirs, and assigns, forever, the right, liberty and privilege at all times hereafter of entering on the premises hereby granted and released with his or their horses, carts, carriages, servants, and of digging, raising and hauling away a sufficient quantity of iron ore for the supply of any one furnace at the election of Peter Grubb Jr., his heirs or assigns at all times hereafter.' It was this remarkable reservation which caused litigation to extend over a quarter of a century in the vain effort of the contestants to prove that the 'any one furnace' mentioned was intended to mean one operated with charcoal as fuel."

Bethlehem Steel Co., as a result of taking over the Robesonia Iron Co., thus is able to control the entire working of the Cornwall iron ore bank, and for the first time since 1786 the interests in this historical ore body have been united under a single ownership.

Going back to ancient history, it may be stated that the Cornwall ore bank formed a part of the original grant of the English Crown to John, Thomas and Richard Penn, May 18, 1732. A parcel of 5000 acres was assigned to Joseph Turner of Philadelphia for £5000 sterling who in 1734 turned this tract over to William Allen. On Nov. 29, 1737, Peter Grubb bought a parcel of 300 acres containing the Cornwall ore banks. He



ROBERT C. LEA
Who has played an important part in the activities of Robesonia in recent years

started a blast furnace and placed this in operation in 1742. This furnace was operated until 1883. The deposit at Cornwall was the backbone for a number of blast furnaces which flourished at Lebanon up to recent years, and which were put on the idle list after their acquisition by the Bethlehem Steel Co. Lebanon at present is not considered an economic iron making location.

The grant of land on which the Robesonia furnace later was located is dated Dec. 11, 1759. The land was conveyed at that time by Thomas and Richard Penn, sons of William Penn, to Conrad Weiser, who was famous for his influence with the Indians.

A feature of the litigation by which the legality of the lease covering the right to enough ore for one furnace was sustained, was the extensive character of the testimony taken during the quarter century during which it dragged out. Everybody of importance in the iron industry during those days was put on the witness stand and questioned about all sorts of details. The record of the case, in effect, comprises a thorough summary of the industry and a complete description of the metallurgical methods and equipment of those days.

Robesonia Iron Co. is the last of the Eastern Pennsylvania furnaces to be operated in the grand old manner. Right up to the present time, the managers of the furnace have resided in a fine old mansion, where in the old days they held forth in somewhat the same capacity as feudal lords. In the early days furnace managers had a good deal more than iron making to think about. They attended to all the needs of their employes and of their families. They brought in from outside points the articles of food and clothing, household goods, implements, etc., which their men and families needed. A feature of interest at this time is that they brought in rum for the regular daily use of their employes. Only a couple of years ago the Robesonia Iron Co. disposed of a herd of prize cattle and of farm-lands, the remnants of the days when the furnace manager made dairy and farm-products available to his men.

Steel Treaters Announce Group at Columbus

A new group of the American Society for Steel Treating was established at Columbus, O., April 29, with a membership of 50. Officers elected are as follows: Chairman, G. S. McFarland, consulting engineer, 600 Joyce Realty building; vice chairman, S. Z. Krumm, metallurgist, Buckeye Steel Castings Co.; and secretary and treasurer, G. D. Moessner, chief chemist, Buckeye Steel Castings Co. At the meeting, J. A. Succop, Heppenstall Forge & Knife Co., Pittsburgh, gave an illustrated address on the "Manufacture of Die Blocks and Heavy Forgings." This is the third new chapter recently organized by the society; the first being the Southern Tier group, including the cities along the southern border of New York and the second, the chapter at Dayton, O.

The Gas Products association recently has completed two reels of welding and cutting films showing all classes of oxy-acetylene work. A limited number of prints are available to organizations making application to the association secretary at 140 South Dearborn street, Chicago.

Attack Michigan's "Zone" Rates

Manufacturers Claim State's Rate Belts Handicap Largest Iron and Steel Consuming Territory in Country—Wire Fence Makers Nearly Wiped Out—Detroit Asks Equitable Treatment—Donner Protests Buffalo's Position

By J. F. Froggett

THREE distinguishing features appeared in the iron and steel freight rate investigation sessions held under Commissioner J. B. Campbell, interstate commerce commission, at Detroit last week. Detroit, be it known, is the largest single consuming center for the entire iron and steel industry. It produces 75 per cent of the automobiles built in the United States and the automotive industry consumes more than 33 per cent of all the iron and steel produced. This gives Detroit a distinct standing in the iron and steel trade.

But Michigan's railroads have not yet become aware of that fact, judging from the archaic "zone" rate system with which ever since 1916 they have penalized Michigan manufacturers who must buy their iron and steel outside the state, move it in, manufacture it and move it outside the state. They pay mostly full fifth class on iron and steel shipments into their shops, pay also fifth class and a "zone" arbitrary for moving it within their own state, and on such finished products as automobiles they pay a high proportion of first class rates. Obviously, as witness after witness testified, this is unfair.

The second feature of the Detroit hearing was the narration of the blighting effect of adverse railroad rates upon a once flourishing Michigan industry—wire fence manufacture—now making its final stand. To this was added a mass of similar evidence from the gray iron, malleable and steel casting foundrymen scattered widely through Michigan. The "zone" rate system is practically localizing their markets within state boundaries.

Third feature was the extraordinarily interesting testimony on the localizing effect of present rate systems upon the iron and steel trade of the country, given by William H. Donner, president, Donner Steel Co., Buffalo. He admitted at the beginning of his testimony he had come to this hearing "because of the destructive influence which railroad rates are having upon the iron and steel trade, already in a deplorable condition." He added that the one thing the industry needs to save it in various sections, of which Buffalo is one, is "a thorough change in railroad rates."

The assault upon the Detroit and the Michigan "zone" rate system was directed largely by L. G. Macomber, traffic manager for the transportation committee of the Detroit chamber of commerce, supported by an array of manufacturers not only of automobiles and accessories but also of a wide variety of products, many of them used by farmers. Mr. Macomber took the position that fifth class rates, which Michigan consumers pay for their iron and steel, are excessive. He noted that Detroit consumers pay 14.00c per 100 pounds of iron and steel for distances which Cleveland consumers, for instance, pay 9½c and others even 6.00c and 7.00c. If commodity rates are to be paid by any iron and steel users, Detroit ought to be treated the same way. If a mileage scale is to be the outcome of this hearing, well and good, he said, if every one be put upon that basis.

Analyzing the various mileage scales proposed by John A. Coakley, United States Steel Corp.; F. A. Ogden, Jones & Laughlin Steel Corp.; and by E. E. Williamson, Washington traffic expert, he declared Detroit is interested primarily upon the first 300-mile block, the distance from Pittsburgh to Detroit being 297 miles. If a "joy rate" is to be established, he recommended to the serious attention of the commission the Pittsburgh-Detroit and the Chicago-Detroit rates, due to the preponderance of iron and steel tonnage moving between those points. He was the sixth witness to endorse the Coakley, Williamson and Ogden scales, these six representing 30,000,000 tons of steel ingot production annually.

The "zone" system was first attacked by J. J. Lynch, Hayes Wheel Co., Jackson, Mich., with a series of exhibits that showed Michigan manufacturers pay rates of 14.00c for distances that in Ohio and Indiana call for 6.00c and 7.00c minimums. Another such witness was L. W. Price of the Jackson chamber of commerce.

P. L. Carter, president, the Jackson Fence Co., Jackson, Mich., protested against the "zone" system. He declared that ten years ago ten flourishing wire fence concerns were located in the southern peninsula of Michigan. Today only two are left. He declared 80 per cent of the cost of producing wire fence is paid out for raw materials; hence the freight rates have much to do with it. The industry labors under a handicap of 4½c to 5½c per hundredweight.

H. E. McGivern, traffic manager, Motor Wheel Corp., Lansing, Mich., also presented a strong case against the "zone" system. His complaint was against being deprived of commodity rates on inbound shipments on which it is at a disadvantage of 2.00c from Pittsburgh, 3.00c from Warren, O., ½-cent from Cincinnati and 2.00c from Buffalo, by paying the full fifth class rates.

Pleads for Buffalo

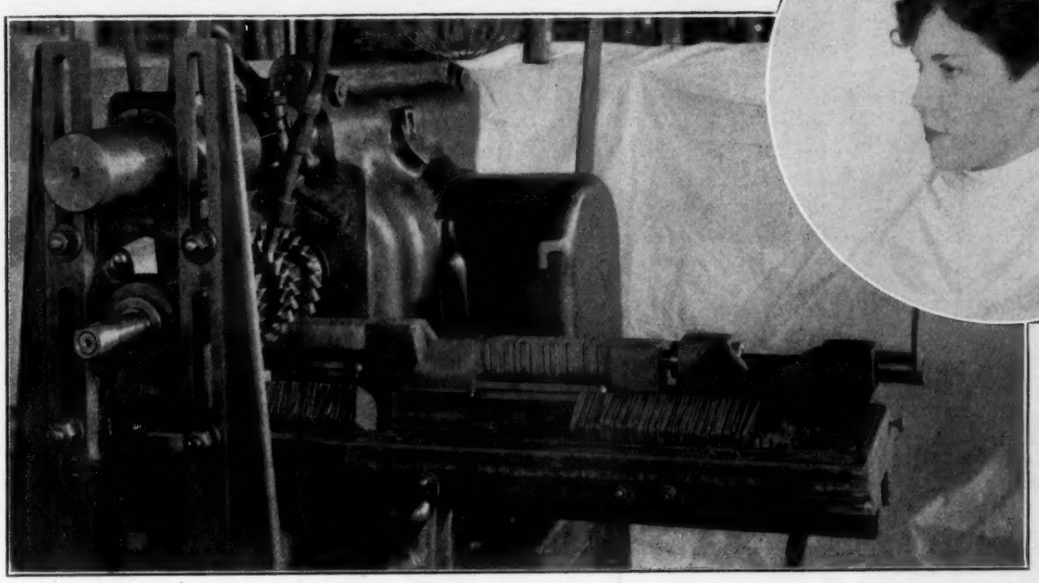
BUFFALO is favorable to steelmaking, having ready access to iron ore, a good labor supply and being as near coal as Pittsburgh is to ore, but suffers from high freight rates on coal and high rates on shipments of finished products, said W. H. Donner, president, Donner Steel Co., Buffalo. Buffalo has $150,000,000 *invested in iron and steel works, but freight rates have almost ruined several of the largest interests, he said.*

Buffalo is shut out of Chicago except when the Chicago mills are booked up. Foreign steel takes an ocean rate to Atlantic ports $4 *a ton cheaper than the rate from Buffalo to New York. Buffalo has an advantage of* 3½ *cents over Pittsburgh into New England, is on a parity to Philadelphia and pays* 1 *cent more to Baltimore.*

Low freight rates do not tend to beat down iron and steel prices, said Mr. Donner. Movements of iron and steel eastward and westward should be freer, he declared. The public would benefit from the resulting sound competition, he maintained.

Large Uses of Steel In Small Ways

Hair Clippers



Bottom plates for hair clippers are milled 50 or more at a time on automatic machines

FOLLOWING the changing styles in hair dress, the small hand clipper has increased rapidly in popularity. Today it is estimated that 500,000 hand hair clippers are produced annually in this country. One company alone turns out 180,000 high grade clippers each year. The amount of steel used in these clippers varies with difference in design, but the steel parts in what may be considered an average type of clipper weigh 2½ ounces, and manufacturing methods call for at least 4 ounces of unfinished material to produce the 2½ ounces of finished parts. This means that for 500,000 clippers 62½ tons of steel are required.

At one large plant the manufacture of hair clippers has been developed to a high point of efficiency. The bottom plates are stamped from steel bars 10 feet long and the width of the plate plus an allowance for finishing. The bar thickness is also of the correct dimension to allow for finishing. For a standard type of clipper the bar thickness is 0.14 inches. After punching, the bottom plates follow through a dozen or more operations, nearly all of which are automatic. At one stage hopper-fed machines automatically drill five holes in each piece at one operation.

The teeth on each cutter are all milled in one operation with special cutters. The teeth are afterwards heat treated, rough ground, brushed to remove burrs, and then finish ground or lapped.

The upper plate of the clippers is made in much the same way as the lower plate. Both are made of high grade low phosphorus, low silicon tool steel. The chemical composition of the steel used includes from 1.20 to 1.30 per cent carbon.

Other steel parts include spiral springs, guide studs, nuts, washers, locking screws and caps. The caps are punched and formed from soft strip steel. Most of the other parts are screw machine products. All exposed parts, except the plates, are nickel plated and their surfaces are polished to a high finish.

In addition to the familiar type of hair clipper which has been used many years by barbers, and which is being introduced into thousands of homes, electric hair clippers are coming into more general use. These are of similar design to the hand clipper, but are operated by small electric motors. The drive is through a flexible shaft to permit turning the clippers in any direction.

Brown & Sharpe Mfg. Co., Providence, R. I., claims the distinction of having stumbled accidentally on the use of clippers for human hair. Some 45 years ago this company made large horse clippers. Two boys working in the plant, while scuffling, used horse clippers on each other with startling effects, and a barber seeing the result, went to the Brown & Sharpe Mfg. Co. and asked them if they could make a small hand clipper for him to use on his customers. Within a few weeks hand clippers were started in production.

THIS is the eighty-ninth of a series of articles dealing with some of the obscure uses of steel which go far toward absorbing the great American tonnage.

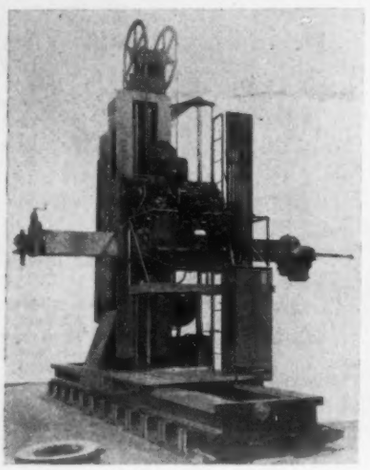
The first article on "corsets" appeared Nov. 22, 1923. Vol. I of "Large Uses of Steel in Small Ways" containing the first and 50 other articles has just been published. Copies are available from Penton Publishing Co. at $1. Other articles appearing every two weeks and not included in Vol. I are:

Tie Plates
Tacks
Knives and Forks
Fence Posts
Dental Drills
Rat Guards
Overall Trimmings
Shoe Steel
Skates
Golf Clubs
Burial Caskets
Scissors—Shears
Pistols
Milk, Ice Cream Cans
Telephone Indices
Steel Heddles
Magazine Racks
Lawn Mowers
Shelter Houses
Camp Stoves
Bottle Caps
Artificial Limbs
Finger Nail Files
Pencil Lead Boxes
Small Steel Cases
Lace Tips
Oil Cups
Ventilators
Toy Autos
Safes
Steel Derricks
Handle Cores
Typewriters
Steel Cross Arms
Ticket Punches
Wrenches
Stamp Pads

Planer Has Wide Variety of Uses

No. 75

This 84-inch stroke, draw-cut, traveling-head planer had been designed for the complete machining of heavy iron and steel castings and for all heavy-duty repair work. It can be equipped with floor plates, work tables, milling attachment, right-angle boring attachment, standard and traveling head boring bars with outer support for bars, reversible head for either push or pull cut, push and pull cut slotter bars and any other special equipment to meet any particular needs. It may be used either as a stationary or portable tool, as the bottom of the bed is machined. It is reversible and may be changed quickly into a large horizontal traveling head slotter.

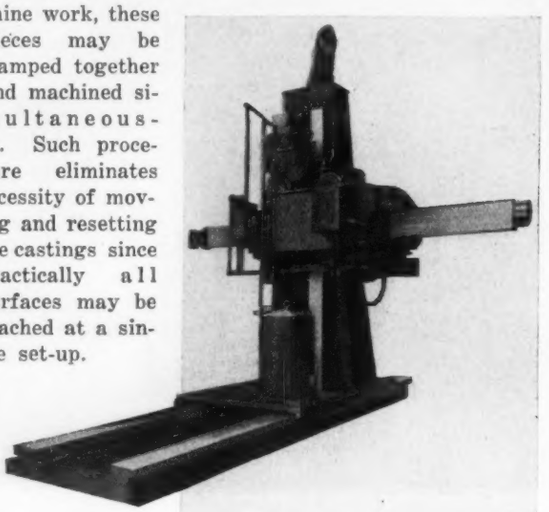


Milling and boring feeds are changed quickly to meet conditions. The tool will mill and bore at right angles with the ram at any 90-degree point of an arc. Many operations can be performed at one setting of the work. All control levers are within easy reach.

Draw-Cut Shaper Has Long Stroke

No. 77

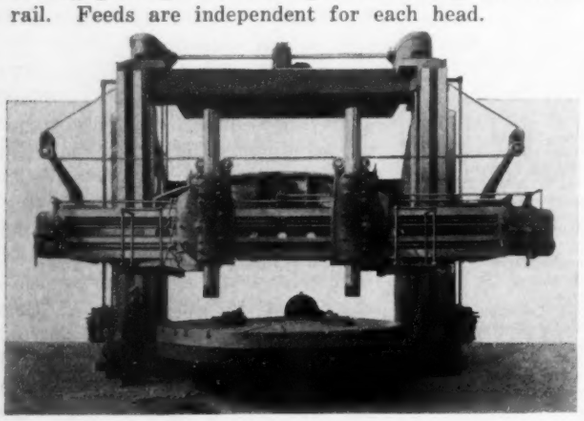
Simplicity of design, rigidity of construction, quietness of operation and quick action are features of the heavy-duty, draw-cut shaper shown here. The normal stroke is 100 inches and extreme stroke 120 inches. Normal cutting rate is 20 cubic inches per minute and cutting speeds are 15 to 30 feet per minute. Reversing clutches, splined shafts, belts and pulleys have been replaced by direct-acting electrical equipment. A reversing motor, carried on the saddle, drives through a single worm reduction and provides quiet and positive action. Where two or more castings require the same machine work, these pieces may be clamped together and machined simultaneously. Such procedure eliminates necessity of moving and resetting the castings since practically all surfaces may be reached at a single set-up.



Boring Mill Is Designed Heavier

No. 76

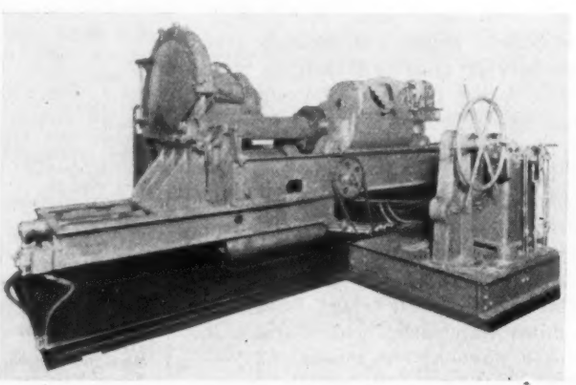
The improved vertical boring and turning mill here described has a capacity of 18 feet between housings and is built of considerably heavier proportions than previous types. The table is supported on double annular tracks, one near to the table drive gear and the other close to the table spindle. Drive to the table is through a totally inclosed gear box. The crossrail is of entirely new design and is of square box type, the section between the housings being uniform throughout its length. Elimination of considerable of the topworks has been effected by providing separate motors, one on each end of the rail for the rapid traverse of saddles and bars, the only mechanism on the top brace being the motor and driving gearing for elevating and lowering the crossrail. Feeds are independent for each head.

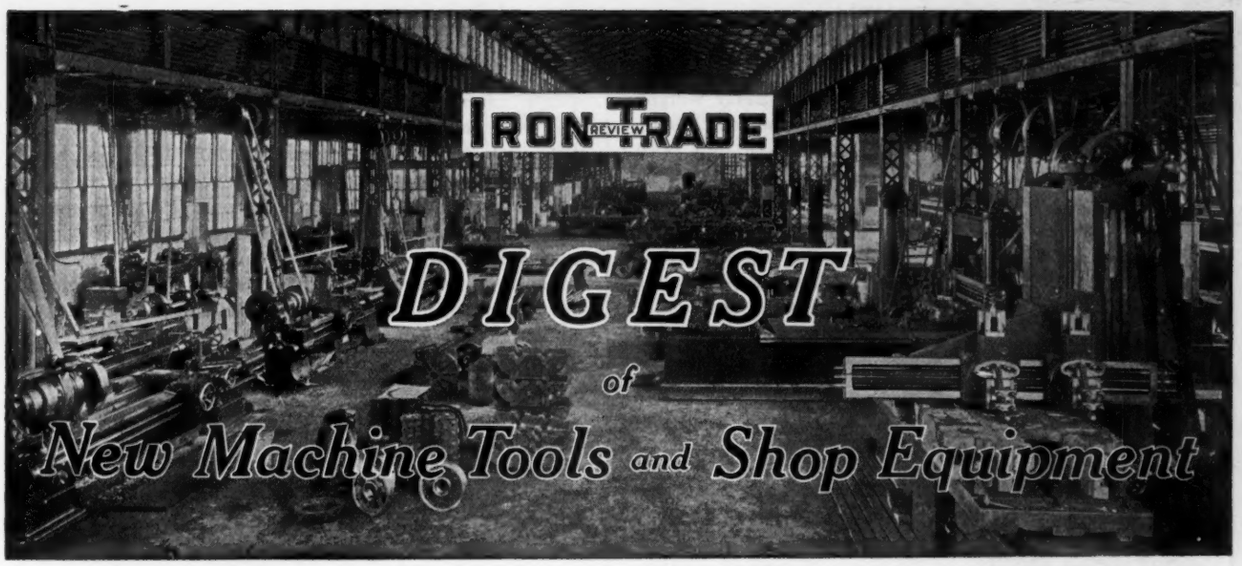


Attachment Aids Cutting with Saw

No. 78

A new rotating attachment has been developed for use with two sizes of a high-speed friction saw on the market so that large rounds, pipe, squares, etc., can be cut to the shortest lengths in a minimum time. For instance, it is said that one saw will cut an 8-inch standard pipe without distortion in 12 seconds. The attachment consists of a structural framework upon which a carriage for the material travels. A pneumatically operated chuck grips one end of the stock and rotates it by means of a constant-speed motor through a change speed gear box. Between a steady rest arranged to receive bushings for various sizes of material and the gage stop is a V support which holds the work while it is being cut and acts as a dumping device for finished pieces.





April Equipment Sales Show Drop

MACHINE tool activity during April has been extremely spotty, and while certain branches have enjoyed good business, other lines have shown declines in orders. Demand appears erratic—one week dealers and manufacturers will be flooded with inquiries and the next week inquiries will become exceedingly scarce. Sales for the most part are for individual tools and purchasers ask for delivery as soon as possible. Apparently, buyers still continue to view 1927 with apprehension and will contract for equipment only as pressure of production necessitates expansion or replacement.

The machine tool industry is making a conscientious effort to drive home to users the wastefulness of obsolete machinery. Users are absorbing this message and the equipment industries have been doing a fair amount of business so far as physical volume is concerned. In a good many cases, accumulated funds are being spent for replacement of old equipment with more efficient, new equipment. The equipment industries all seem to be able to fill current orders without much delay.

It is to be recalled that the year opened with the machinery business extremely slack and that during January, February and March, activity climbed slowly. Now that April has passed, it is quite evident that March constituted the high point thus far, for sales slipped off noticeably in the last 30 days. General industry has purchased rather steadily, but the automotive industry remained out of the market except for a few plants and the railroads have not taken equipment to any large extent.

Those engaged in the machinery business agree that the first quarter of 1927 does not come up to that

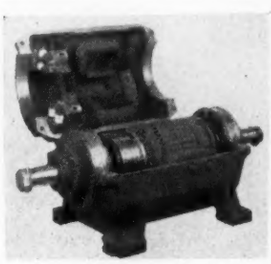
Write for Information

IN THIS issue of IRON TRADE REVIEW, *descriptions of new machine tools and shop equipment introduced in April are described without any reference to the names of manufacturers. The equipment is announced and described for the benefit of readers who are interested in new machine tools and shop equipment. Names and addresses of the manufacturers, as well as detailed information regarding each item of equipment, are kept on file and will be furnished upon request. Communications should be addressed to* IRON TRADE REVIEW, *New Equipment Department, Penton building, Cleveland.*

Motor Built Under New Standards

No. 79

A new line of steel mill motors just announced is said to be the first built under the new standards of the Association of Iron and Steel Electrical Engineers. These motors are of the rolling bearing type, although sleeve bearings can be supplied. Greater adaptability to severe service conditions is claimed. Parts are more accessible and better protected. A feature is ability to commutate high overloads.



Demagnetizes Pieces in Quantity

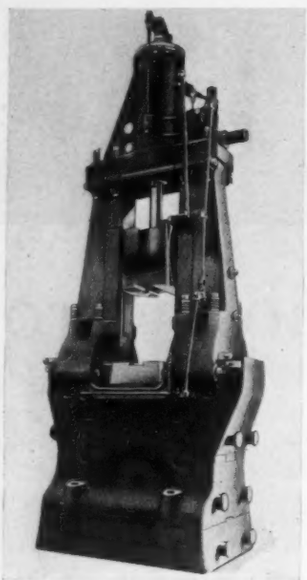
No. 80

To remove residual magnetism from small pieces and tools which have become magnetized by being held on a magnetic chuck is the function of the demagnetizer described here. Although the device will handle quantities of small pieces with dispatch, it is not recommended for single heavy pieces, despite the fact that the opening is 6½ inches wide and 2⅞ inches high.

Drop Hammer Is of Unusual Size

No. 81

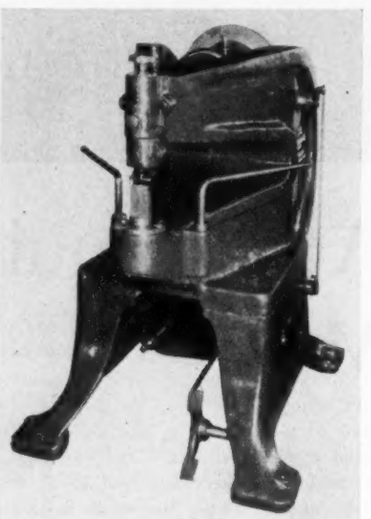
A steam drop hammer built recently weighs about 250 tons and has reciprocating parts, including the top die, totaling 10 tons. To facilitate installation, the anvil was cast in three pieces. Overall height is 33 feet, but when installed most of the anvil will be below the floor line. The working face of the ram is 44 inches square; cylinder bore is 25 inches and rod diameter 9 inches. The rated stroke is 50 inches. Practically the entire construction is either steel castings or alloy steel forgings. The frames are of box section and they support the guides on five slides. No provision is made for guide adjustment. Another feature of design is that the bottom separators between the frames are of the drop type. The entire upper works forms a rigid unit which can be adjusted across the anvil for aligning the dies and taking up wear with wedges. Taper gibs take up wear at right angles to this movement.



Nibbling Machines Are New Size

No. 83

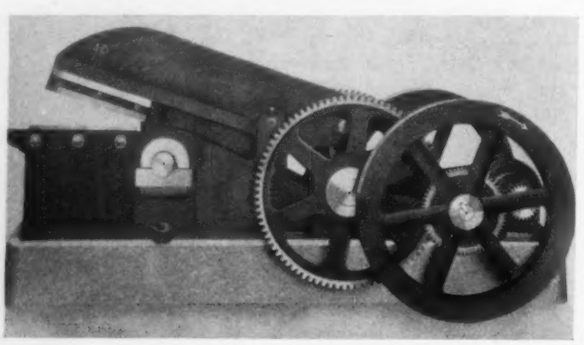
Two new sizes of nibbling machines recently have been placed on the market. The smaller is intended primarily as a bench machine for use when cutting thin stock up to 14 gage. The principle of operation, the punch and die, is the same as in the larger machines. It is especially adapted to small work such as trimming embossed work, duplicating small parts, templet making, small stencil or sign cutting, etc. Cutting speed is 60 inches per minute. The driving motor is geared direct to the machine. The larger nibbler, shown in the illustration, was designed especially for cutting sheets of chrome-nickel steel ⅜-inch thick. The throat of 30 inches makes it possible to cut large sheets. At 350 strokes per minute, the machine will cut approximately 26 linear inches per minute. In addition, the tool will do regular shop work. It is belt-driven.



Shear Largely Steel Constructed

No. 82

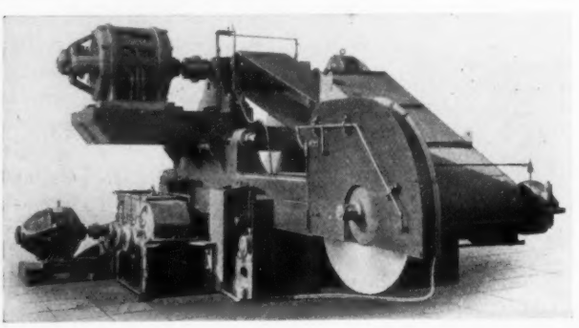
A new lever or alligator shear developed for steel plant, warehouse and scrapyard use is of all-steel construction, except the flywheels, bearings and tapered liner. A safety shearing pin, easily and cheaply replaced, insures the main machine parts against breakage in case a piece larger than capacity is inserted between the blades. Twin gears are used on the heavy steel crankshaft, this balancing the load and preventing springing of the crankshaft. These gears are made of steel and have machine cut teeth. This type of teeth compels the load to be distributed evenly over the gears, and therefore does not allow only one pair to do the work as is sometimes the case when cast teeth are used. The bearings are bronze bushed, permitting a quick and economical repair. The main lever bearing is bronze bushed and the side thrust developed when shearing is taken by a tapered adjustable gib.



Saw Features Differential Feed

No. 84

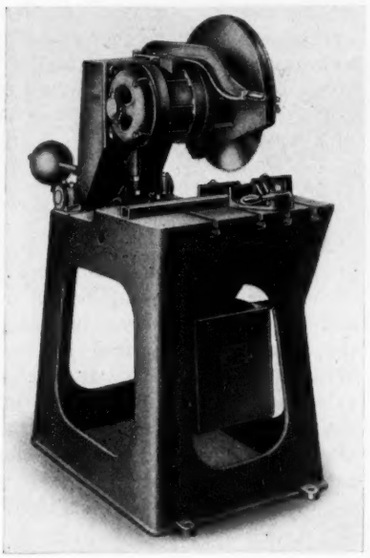
A sliding-frame hot saw recently built for a steel company is deserving of attention because of its improved feed mechanism. The earlier type had a differential feed, driven by two motors electrically controlled so that as the speed of one motor varied in relation to that of the other, the saw moved forward or backward. The new saw has only one feed motor, a direct-current, shunt-wound, adjustable-speed, 20-horsepower unit, with a speed range of 500 to 1500 revolutions per minute. This motor gets its current from a direct-current generator which is coupled to the main motor driving the saw. By this arrangement, with a suitable variable voltage magnetic controller, the feed of the saw varies with the load on the saw blade, as reflected in the speed of the main motor, which is to be seen mounted on top of the sliding frame. The saw blade is 66 inches diameter and runs about 20,000 feet per minute.



Saw Cuts Metals at a High Speed

No. 85

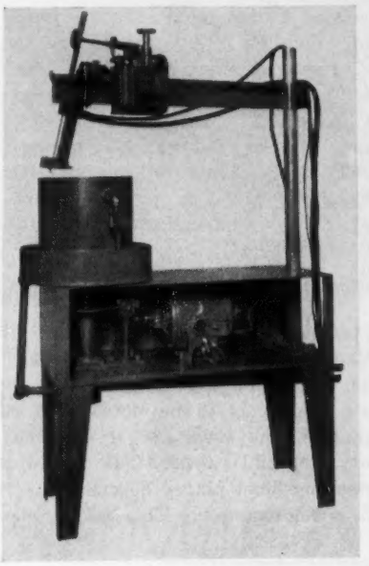
To cut with a high rotative speed circular toothed saw cold metal such as small light section beams, angles, brass copper, structural and welded tubing, pipe, fence and fire escape materials, metal moldings, metal furniture parts, light section pressed and drawn steel shapes, is the purpose for which the accompanying saw has been designed. The saw is mounted on the motor shaft and is driven by a 5-horsepower ball-bearing motor. The tilting frame has a spring cushion stop and is connected with a spiral spring to return frame to height necessary to clear material being cut. Saw is fed down through the matrial by an offside handlever attached to the tilting frame. An adjustable counterweight at all times preserves the balance. The table has a quadrant stop which can be set to any angle desired.



Does Welding with Arc Submerged

No. 87

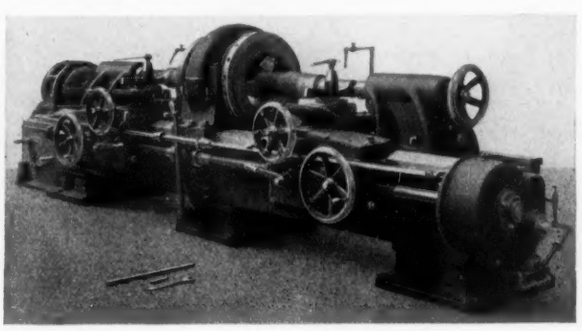
Included in recently announced welding equipment is an automatic carbon arc welding machine which welds circular seams up to 12 inches diameter. No preparation of the edges to be welded is made. A feature of the machine is the cooling tubs around the revolving table which carries the piece being welded. The piece may be partially or totally immersed in water during the welding, the water in the tubs being circulated. The cooling arrangement was developed to meet the requirements when welding high-grade alloy steels in which the heat disturbance due to the welding heat must be reduced to a minimum. In the case of 12 per cent manganese steel, the welding may be done with the piece totally immersed and the arc submerged. The frame and details of the machine all are made of welded steel construc- angle desired.



Axle Lathe Has Added Capacity

No. 86

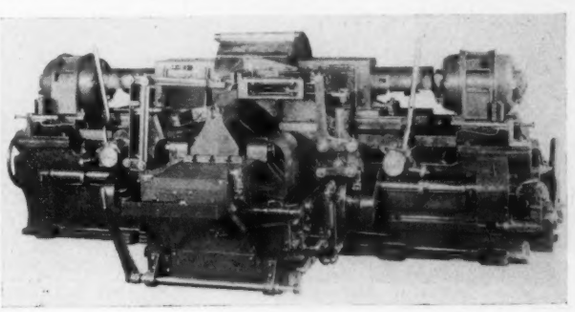
A manufacturer of railroad shop equipment has incorporated in its double axle lathe two features which add greatly to the convenience and productive capacity. Either or both of these features are offered as optional to the standard equipment. One consists of an equalizing driving head in place of the regular driving plate and driver dog as shown in the accompanying illustration. The other is a multiple tool holder. The driving head consists of a driving spool with dogs which come in contact with the axle and increase their grip as cutting pressure increases. An equalizing device in the driver takes care of any eccentricity or roughness in the axle forging. The jaws are opened with a pinch bar and may be held open for removing or inserting axles. The multiple tool holder carries four tools, each tool being spaced and shaped to perform its specific operation with minimum carriage movement.



Parallel Surfaces Ground at Once

No. 88

For grinding two opposite parallel surfaces, the double-spindle type grinder shown here recently has been developed. The machine carries two 24-inch diameter cylinder wheels mounted in chucks and each is driven by a 20-horsepower motor connected to spindles through flexible, sliding couplings. The work table, on which suitable fixtures are mounted, reciprocates in and out between the grinding wheels by means of a hydraulic system. Through the use of automomatically operated cams and valves, virtually any desired motion of table travel can be produced in a simple and practical manner. The grinding wheel heads automatically open and close in proper relation to the cross travel of the work table. On long cuts, gradual in-feed of the heads is provided and in all cases, micrometer stop screws are furnished for each head so that duplicate sizes may be obtained on a production basis. Among features of design is the spindle and head construction.



contracted for in the first quarter of 1926. On the other hand, it is interesting to note that exports of industrial machinery for the first three months of this year are over $4,000,000 in excess of the corresponding period of last year. The total for 1927 is $41,358,424, as compared with $37,222,642 for 1926.

Average monthly exports for the current year are $13,752,798 against an average of $12,339,411 for 1926. Reporting on the situation, the industrial machinery division of the department of commerce states, "a gain of approximately $1,000,000 was recorded in exports of metalworking machinery in March." Some of the increases in March, as compared with a year ago, were as follows: Engine lathes, $162,659 to $269,602; turret lathes, $82,221 to $125,682; planers, $3008 to $41,787; and shapers and slotters, $71,702 to $130,641.

Production Range Wide

Considerable new equipment was introduced in April, as a glance at the accompanying pages will indicate and it is to be noted also that many of the tools are of the heavy-duty special type. The draw-cut, traveling-head planer described as No. 75 is an example. This machine will perform planing, boring, milling and slotting operations when equipped with the various special attachments which have been designed for it. According to the manufacturer, it is adapted for complete machining of large rolling mill housings, engine beds, air compressor and refrigeration castings, turbine and hopper section castings, keyseating of large flywheels and gears, and for general repairs of steel mills and contract shops where heavy machining is done.

In No. 77 is described a heavy-duty, draw-cut shaper featuring simplicity of design, rigidity of construction, quietness of operation and quick action. Where two or more castings require the same machine work, these pieces may be clamped together and machined simultaneously. This procedure eliminates the necessity of moving and resetting the castings since practically all surfaces requiring machine work may be reached at a single set-up with a long stroke, vertical adjustment and movement along the bed. A reversing motor, carried on the saddle, drives through a single worm reduction and provides noiseless and positive action. Stroke of the ram, feed and traverse are controlled electrically.

The large vertical boring and turning mill, shown in No. 76, has a capacity of 18 feet between housings and is built of considerably heavier proportions than previous types. The table is supported on the bed on double annular tracks, one as near as possible to the drive gear and the other closer to the table spindle so as to distribute the load more uniformly. The crossrail is of entirely new design and is of square-box type. Safety and convenience of the operator has been taken into consideration by the duplication of operating levers at the saddles and ends of the rail and by providing an adjustable platform with rail on each saddle and at the back and each end of the crossrail as well as around the top brace, with access to these parts by steel ladders.

Lathe Features Attachments

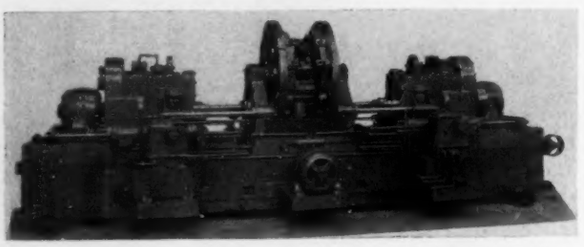
An equalizing driving head in place of the regular driving plate and driver dog and a multiple tool holder are two new features offered with the axle lathe described as No. 86. With the equalizing driving head, axles up to the full capacity of the machine can be driven with the one set of jaws, as there is considerable rotary movement of the ring gear.

(*Concluded on Page* 1186)

Boring Machine of Two-Way Type

No. 89

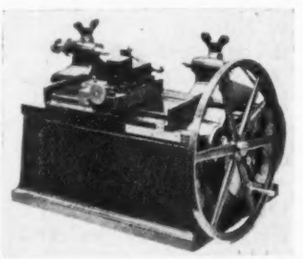
The accompanying illustration shows a large multiple-spindle, two-way, horizontal boring machine with fixtures and tools for boring the idler shaft, main shaft and countershaft bores simultaneously in two transmission cases. The heads on each end of the machine slide on wide ways and are each driven by a direct-connected motor mounted on the saddle and fed by hydraulic mechanisms. The spindles have independent adjustment to take care of grinding of tools. The fixture is mounted on roller bearings and is indexed by hand. The bottom of the fixture frame is cored out so that chips from the boring operations fall inside the main frame on screw-type conveyors that carry them to the end of the machine. Each head has an independent pump for driving it and the sequence of operation is for the operator to chuck the work, index the fixture and start the feed on the heads by the foot treadle. There is a pedal for each head but both may be engaged at the same time. The heads have rapid traverse until the cutters engage in the work.



Device Checks Threads Accurately

No. 90

The machine described here is adapted to the measurement of both internal and external threads. It will hold plug gages up to 6 inches diameter and 8 inches long and has a 4-inch travel. The bed carries two sockets with adjustable centers for support of the thread gage. A micrometer slide is moved in other ways parallel to the axis of the gage by rotation of an accurate screw.



Machine Does Hand Reaming Work

No. 91

The accompanying illustration shows a power-driven hand reaming machine applicable to work of a size to be handled easily and which it is desirable to ream for accuracy or to remove burrs. The machine holds the reamer vertical and rotates it at either 21 or 38 revolutions per minute. The work is held by hand directly or with a suitable wrench. Capacity is 1 to 3-inch hand reamers. Drive is from a 1½-horsepower motor belted to a worm shaft.

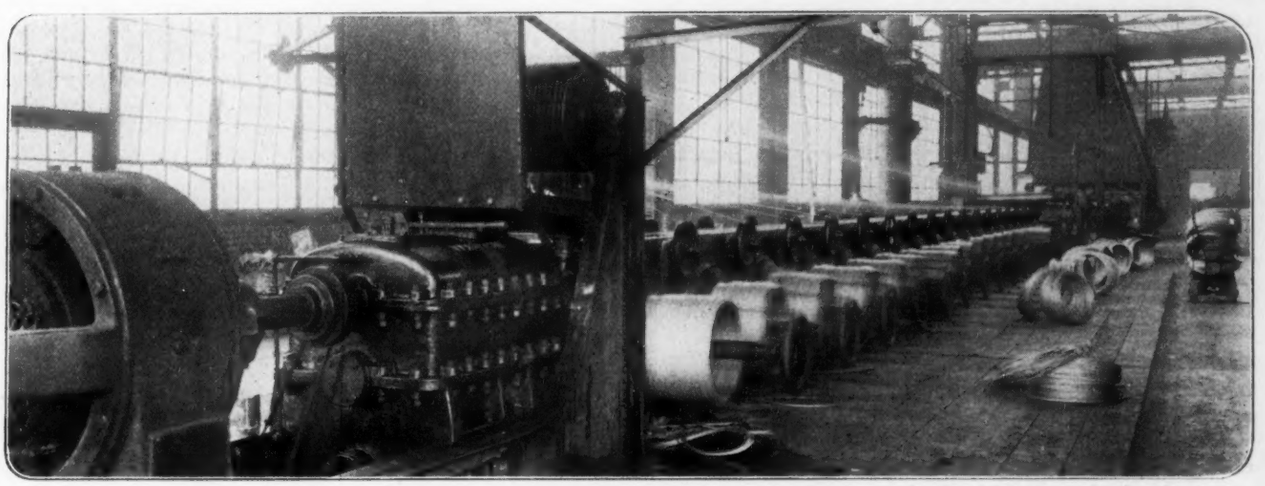
Open and muffle-type bundle conveyors. The roll storage rack is shown at the left

New Features Are Incorporated in Tidewater Rod and Wire Mill

By George A. Richardson

A NEW rod and wire mill, which embodies a number of new and interesting features, recently was placed in operation at the Sparrows Point, Md. division of the Bethlehem Steel Co. The rod mill is different from most others, in that it is entirely gear driven. Changes in the relative layouts of the different divisions of the plant, unusually high operating speed on the nail machines, and the long warehouse and shipping wharf running practically the entire length of the wire mill are among the other features.

The Maryland plant, located about 10 miles from Baltimore, has its own deep water port, served by its own steamships, and includes its own coke ovens, blast furnaces, open-hearth furnaces, bessemer converters, rolling mills, fabricating, tinning, galvanizing and finishing shops. It receives most of its ores by water from the com-



TAKE-UP FRAMES IN THE GALVANIZING DEPARTMENT. THE ENTIRE EQUIPMENT IS MOTOR DRIVEN

pany's own mines, and limestone from its own quarries.

Starting with the raw materials, this plant is entirely self-contained, thus affording opportunity for close supervision of all operations and materials from start to finish. Hence few rod and wire mills in this country or abroad enjoy more direct or complete service.

Plant Located at Tidewater

The Maryland plant is the only large steel plant in the United States located at Tidewater. It is at the rail as well as the water gateway of the growing industrial district of the South; and has a large and increasing local market in Baltimore and its environs, which is advantageously served by motor-truck delivery.

The furnace in which the billets are heated for rolling into wire rods follows the lines of general practice. It is of the continuous heating, side discharge type, recuperative, and with forced draft. The furnace has a billet heating capacity of 25 tons of 1¾ inches square x 30 feet billets an hour. Billets are fed with an electrically-operated charger and pusher machine and discharged directly into the first pass of the roll train by an electric-discharging machine.

Two 10 feet diameter gas producers, each with a coal capacity of 2500 pounds per hour, furnish the gas for the reheating furnace. They are charged automatically from overhead storage hoppers, each having a capacity of 26 tons of coal. These in turn are supplied by an electrically operated skip-hoist, which receives coal from a railroad track hopper, dumps it into an overhead chute, which discharges into reciprocating feeders. These feed the coal to electrically operated single roll crushers where it is crushed to size and then discharged into the storage hoppers. The gas produced is carried by a 3¼-foot diameter feeder from each producer to a main, 5¼ feet inside diameter, and thence to the furnace.

The building which houses the wire and rod mill has an Aiken-type roof, structural steel frame and brick walls, with gypsum roof slabs, floors of concrete and the sash and doors of steel. This building is 350 x 75 feet and 30 feet high, and is equipped with a 15-ton capacity crane. At the end of the building is located the Morgan type electrically operated 2-high continuous mill for the production of wire rods.

INTERIOR OF ROD CLEANING HOUSE SHOWING BUNDLES OF RODS BEING TRANSFERRED TO PICKLING VATS

This rod mill is different from most others in that it is entirely gear driven. In the past the roll train has usually been driven by means of belts in order to insure the absolutely smooth flow of power required. Gears had a tendency to "jump" the rolls, causing nicks and bumps on the finished rod. In the present mill, however, this difficulty has been overcome by the use of specially cut helical spiral gears driven by a 4000-horsepower induction type motor. This design eliminates the uncertainty of belt drive and the loss of power due to slippage by replacement with positive power linkage that assures proper relative speeds of each pair of rolls in the continuous trains.

Employs Additional Stand

Another difference is the use of 17 stands in place of the usual 16. These consist of seven roughing, nine intermediate, and one finishing stand. By the use of the additional roughing stands less work is required in each individual pass, entailing less wear on rolls and bearings, increased ease in retaining the roll draft, and greater production per hour through longer periods of continuous operation and higher speed.

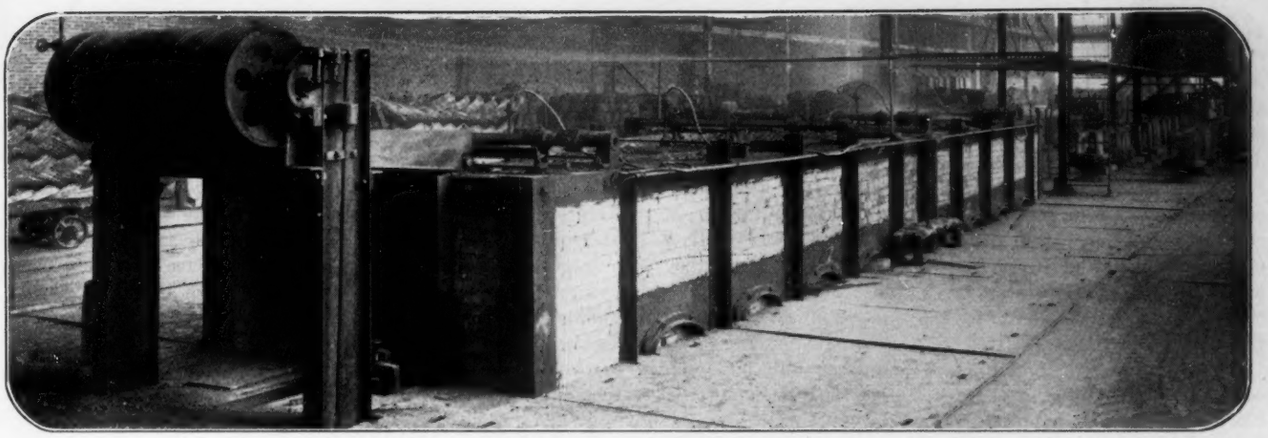
Rolling Speed Varies

The speed of the first roughing stand is 17.368 revolutions per minute or 44.45 feet a minute. Sixty seconds after entering the first roughing rolls the finished rod emerges from the finishing stand, in which the rolls turn 1192.2 revolutions a minute delivering the rod at a speed of 3466 feet a minute. Forced feed lubrication is employed.

Four rod delivery or switch pipes and the four coiling reels which they supply are controlled electrically by a single operator. Each reel has its own separate conveyor. When the reel is full, guide pins drop down, permitting the coil of rod to move on the conveyor without danger of snarling.

The four conveyors are designed to be of the muffle type and are inclined, the point of delivery being well above the floor line of the mill. At the present two are being used with the muffles and the other two without. The muffle type has proven particularly advantageous in the handling of high-carbon steels. At the top of the incline, electrically operated tilting arms receive the bundled rods and transfer them to a carrier.

This conveyor is an electrically operated, slow moving cooling rack, 901 feet long, with hooks spaced 4¼ feet centers and set at such heighth that, when carried by the hooks, the bundles are about 20 inches from the floor. Forty-two minutes are required for the bundles to travel the entire cir-



VIEW IN THE GALVANIZING DEPARTMENT SHOWING THE LEAD PANS THROUGH WHICH WIRE, FROM REELS IN THE BACKGROUND, IS FED

cumference back to the discharge point where they arrive at room temperature. Here the bundles are lifted from the hooks, laid upon the rod trucks in lots of eight bundles to the truck, and delivered to the shipping platform for loading on railroad cars; or to the rod storage building whence they are taken to the rod cleaning and baking department.

The rod storage building is 150 x 75 feet and 33 feet high, has storage capacity for 1000 tons of rods, and is provided with 200 rod buggies. Material is handled in this house with an overhead crane and a depressed track is provided at one end for loading trucks.

Housed in a building 175 x 100 feet is the rod cleaning and baking department, where the rods are cleaned, pickled, water coated; or limed and baked, depending upon the requirements. Downey-type yokes, made of acid resisting bronze, are used for carrying the bundles of rods to the various operations.

Ten wooden pickling tubs, each having a capacity of 850 gallons of pickling solution, are arranged in a semicircle. Acid can be run directly into these tanks from individual acid tanks, which are graduated in gallons. One oval type wooden tub of the same design as the acid tubs is provided for rinsing the rod after pickling. There are two lime tubs made of steel plate.

Material Handled by Crane

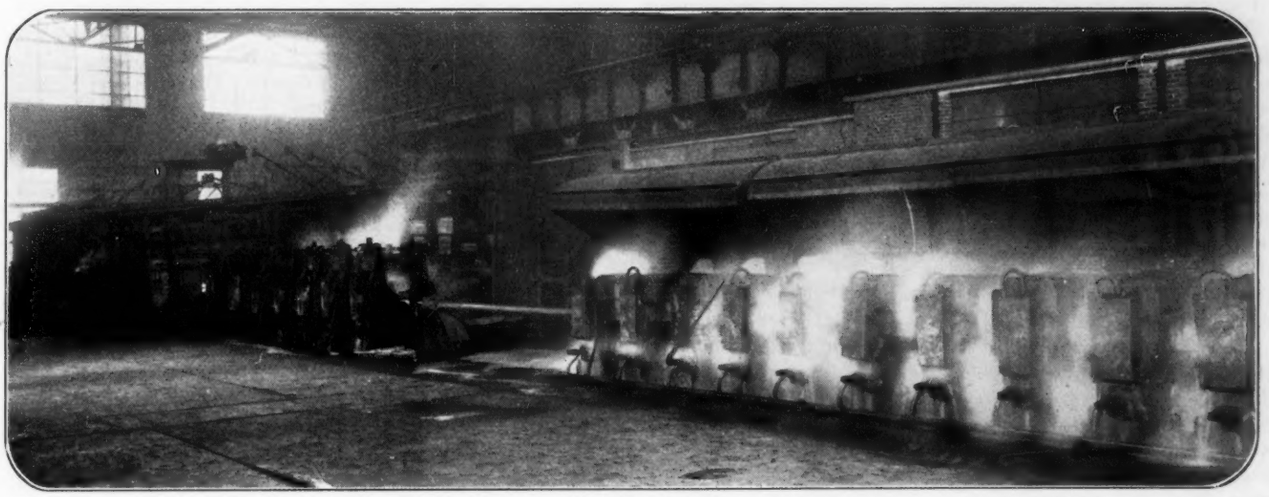
A steam-operated jib crane with a boom of 20-feet radius serves the acid pickling and water rinsing tubs. The hoisting hook will revolve over the center of each tub. Another similar crane, but with a boom of 14 feet radius, is arranged to serve the water rinsing and lime tubs.

Rods that are to be water-coated or rusted are handled in an 8 x 40-foot conveyor of the chain type. This conveyor is mounted on a wooden frame, is electrically driven, and equipped over the entire length with spray nozzles. It is built to accommodate the Downey-type yokes, and there is a conveyor which returns the empty yokes to the first acid pickling tub.

The baking equipment consists of a 10-track wire rod baker, each track capable of holding eight truck loads of bundled rods. The baker is divided into five sections, each containing two tracks 62 feet long. Separate heating by fuel oil or butuminous coal is provided in each section, with unit control for cutting out any one or more of the five sections. Each compartment is closed on the end by a counterweighted, lifting, sliding door.

The wire drawing department is housed in a building 150 x 300 feet. The drawing equipment is of the latest type, the majority of the blocks being of the single-head, and a few of the double-head type. Each block is indiviually driven by a 20-horsepower motor with control gear for any speed between 50 and 150 revolution per minute.

A feature of the blocks is the safety device incorporated in each machine. Located on a corner of the machine, in line with the die, is a metal ring about 8 inches diameter, supported by an arm, hinged so as to throw backwards towards the die block. Con-



GENERAL VIEW OF NO. 1 ROD MILL SHOWING THE CONTINUOUS HEATING FURNACE IN THE BACKGROUND. A FLYING SHEAR IS INSTALLED AT THE END OF THE ROUGHING TRAIN

nected to this hinged arm is a switch that opens or closes the motor circuit, depending upon its position. In operation the rod or wire is threaded through this ring, then through a drawing die and on the drawing block. Should a snarl or kink occur in the rod or wire as it leaves the paying roll, it is intended that it will catch on the ring, throw it back, open the motor circuit, thereby stop the motor, thus preventing accident to the machine or operator.

To facilitate the handling of wire coils in passing from one drawing block to another, stripping cranes and hoists are provided.

Facilities are provided for drawing all sizes of wire from No. 15 B. & S. gage to ⅜-inch diameter. A section of the warehouse and rod shipping department is set aside for the annealing operation.

Straightening and cutting is done in a section of the warehouse by four electrically-driven wire straightening and cutting off machines.

The building which houses the nail department is 150 x 325 feet. Here are located the various machines and equipment for making the dies, and also for hardening them; an electric furnace is provided for this purpose.

A total of 139 machines adapted to making a wide range of standard sizes and varieties of nails form part of the equipment of this department. The capacity of the nail mill is over 3000 gross tons per month.

Nails from the machines are lifted up in buggies to the rumbler charging floor by a 5-ton crane. The rumbler charging floor, built entirely of steel, is about 10¾ feet above the main floor of the nail department and is 36 x 75 feet. At the entrance end is a 5-ton capacity platform scale on which incoming nails are weighed.

Beneath the rumbler floor are located the nail rumblers and the keg shakers, which are driven by electric motors. There are eight 25-keg rumblers, each with four keg shakers, and four 10-keg capacity rumblers, each with two keg shakers. The nail rumblers are elevated to allow the clean nails to fall from the rumblers on a steel plate platform, from which the nails are scraped into the empty kegs in the shaking machine.

The kegs are then weighed and enough nails added to the keg to fill to the required weight. From this point the nails go either direct to the shipping room, or to the assorting room to be prepared for galvanizing, cement-coating or blueing.

A 10-keg tumbler is installed for the pupose of manufacturing cement-coated nails. A hot tumbler and necessary equipment provides the facilities for making blued and sterilized nails. Equipment is also provided for galvanizing nails, this including hot tumbler, water tank, centrifugal dryer, etc.

In the bale tie department, single loop bale ties are made from Nos. 13 to 16½ wire, in lengths from 7 to 13 feet. Two machines are in use each of which makes five complete bale ties in one operation. There are ten operations producing 50 ties per minute. The ties are automatically counted and ejected from the machine in bundles of 250 each.

The wire galvanizing department occupies a separate building and includes two lead-pan annealing furnaces, complete with depressor rolls and comb. These pans are 54 inches wide by 15 feet long and 10 inches deep, and arranged for annealing 36 wires at one time. The length of the furnace is 40 feet.

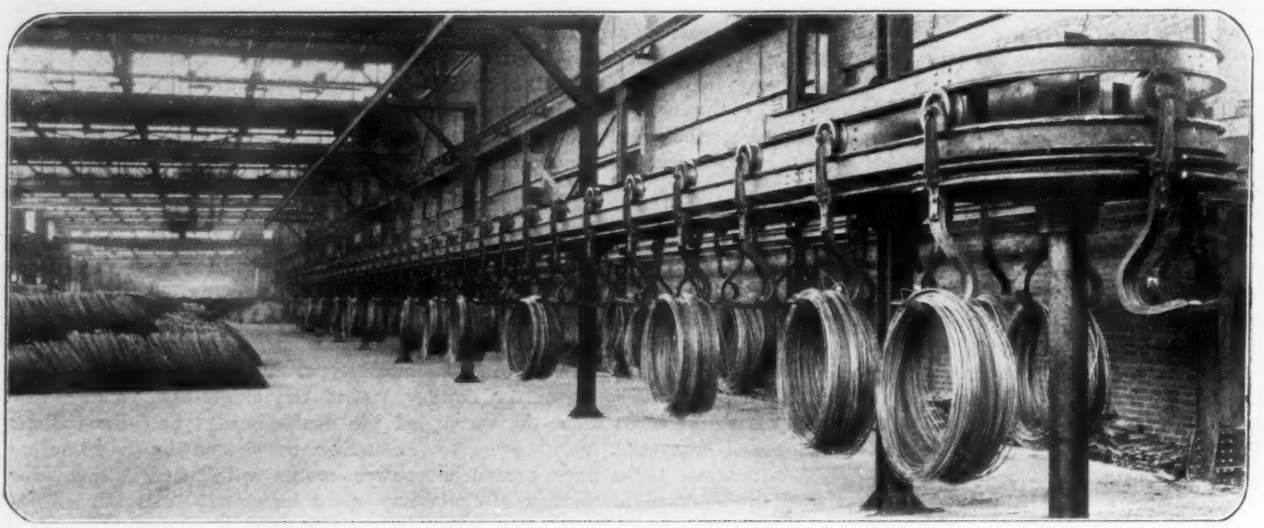
The galvanizing pan, complete with depressor rolls and wipers, 54 inches wide x 24 feet long and 22 inches deep, is arranged for galvanizing 36 wires at one time. The furnace is 26 feet long and is arranged for oil or coal fuel. The equipment also includes one water quenching box used for cooling wires before they enter the pickling tank; one granite pickling tank; one water wire washing box to wash acid off wire before it enters the granite flux box; one granite flux box; one inclined hot wire drying plate to dry wire before it enters the galvanizing tank; one inclined coke wipe, to wipe surplus spelter from each strand of wire as it leaves the galvanizing tank; and, one 36-reel, electric ally operated take-up frame, 18 reels in each side, the gearing and motor drive of which is designed to run at nine different speeds.

With this equipment wire from No. 16 to No. 4 gage can be galvanized.

In the barbed wire department are located machines for making four-point Glidden, four-point Invincible, four-point Cactus, four-point Conemagh, two-point Glidden and other combinations.

Facilities for the bulk shipment of rods, wire, and wire products are provided by a shipping room and finished stock warehouse 75 x 1525 feet, with a storage capacity for 1800 tons of rods, and with 900,000 cubic feet of space for wire products.

The 12-foot wide shipping platform is also 1525 feet long, and affords ample room for all shipping requirement. Another outstanding feature of this platform, aside from its length, is the roof which extends out over the middle of the cars and protects the entire platform, precluding weather interference with the loaders and their work.



HOOK-TYPE CONVEYOR. THE BUNDLES OF WIRE ARE SUSPENDED 22 INCHES ABOVE THE FLOOR

Editorials

Steel Profits Hit by Lower Prices

IN THE first quarter of 1927 production of steel ingots was 2 per cent below the first quarter of 1926. Output in March reached a new high for all time. Meanwhile, since the beginning of the year, prices of iron and steel products have been steadily declining. In view of these conditions affecting operations and prices, reports of first quarter earnings have been awaited with more than usual interest. In them is to be found tangible evidence of what already had seemed probable —a distinctly narrowing margin of profit.

There are some exceptions, but in the main earnings have been lower than in the first quarter of 1926. The United States Steel Corp. is one of those to show an increase over the first quarter of 1926, but the gain was only 1 per cent. By now it must be clear there is a limit to the effectiveness of expanded volumes of output to checkmate falling prices.

During 1926 earnings made a substantial gain despite declining prices. But the price fall was so mild it was found possible to absorb it by operating economies. This year, however, the industry allowed itself to be stampeded into extensive price weakness. This was brought about by the temporary slump at the end of 1926 and the general atmosphere of uncertainty under which 1927 started.

It is now evident that early fears were groundless. Great consuming lines such as the automobile and building industries have done better than expected. From present indications the steel industry should experience little more than normal seasonal fluctuations. If the narrowing margin of earnings discernible in the first quarter is not to be carried further, producers must not only seek to make further improvements in efficiency but they must also hold to more positive ideas in prices. Low but stable prices are justified by stimulated consumption, but demoralized ones help neither producer nor consumer.

"Zero Inventories" Impose Problem

AT THE meeting of the American Management association in Detroit last week the staff representative of IRON TRADE REVIEW did not hear the expression "hand-to-mouth buying" from any of the speakers. All of them, however, touched directly or indirectly on the subject of how to keep inventories near the vanishing point while maintaining an efficient, flexible system of production.

Production managers and industrial engineers evidently are not thinking of hand-to-mouth buying in the same terms as are sales managers. The fact is that hand-to-mouth buying has created a tremendous problem for them. Like "good soldiers" they are fighting valiantly to overcome certain handicaps to production imposed by such a method of purchasing. They seem to have accepted the challenge; they cannot have on hand any more material than necessary for the immediate purpose, and yet they must check down or turn on the stream of production instantly.

Logically, the question arises whether it is being overdone; whether the hand-to-mouth buyers, with "zero inventories" are not losing as many dollars as they are saving. There must be more accurate comparisons, and there will be when all the factors are more definitely understood.

The solution to the problem probably will not be found in "zero inventories," for which some companies are striving, nor in an excess of material on hand, but in a reasonable amount compatible with good production methods.

Rail Steel Wins New Favor

SOME sellers and fabricators of billet steel reinforcing bars in the Chicago district have expanded their facilities so that they now handle rail steel bars as well. This is an innovation. For a number of years the relative merits of new billet steel and rail steel for various types of reinforcing purposes have been widely discussed. Distributors have vigorously advanced the qualities of the bars they offered. Unanimity of opinion still is lacking on some points.

The acceptance by billet steel warehouses of a share in the distribution of rail steel implies a greater degree of service to the user. The handling of both kinds by billet bar interests is not to be a warehousing convenience, however. No stocks of rail steel bars are to be carried. The departure in the merchandising of these reinforcing products will be in the filling of orders for rail steel bars by billet steel distributors when rail steel is specified. Many architects and engineers are specifying more commonly the rail steel product for certain purposes. Illinois highway commission uses rail steel bars for road work, and this demand has been expanding.

The decision of the billet bar interests to handle both grades should enhance their service. Simplification also should result. The handling of both billet and rail steel bars by the same warehouses doubtless will have a more stabilizing effect on prices for both, and this will be a decided advantage to both buyer and seller.

Car Surplus Regulates Buying

CURRENT statistics of freight car supply are more encouraging to consumers of iron and steel than to the car-building industry. Despite loadings of about one million cars weekly, the railroads on April 15 had 269,473 surplus cars immediately available for service. The coal strike pales as a factor in this condition, as of this surplus only 93,866 were coal cars compared with 129,490 box, 25,876 stock and 11,552 refrigerator cars.

In the meantime the railroads have been installing less new equipment. In the first quarter installations totaled 15,796 freight cars, or 5567 under the first quarter of 1926 and 28,537 under the first quarter of 1925. As of April 1 the railroads had 27,255 freight cars on order, compared with 49,524 one year ago and 46,126 two years ago.

A margin of over 20 per cent of surplus cars over current demand puts the railroads in a comfortable position. Intensified use of equipment and longer life due to the steadily increasing proportion of steel cars would seem to explain the situation. For users of iron and steel this easy condition makes possible hand-to-mouth buying with its consequent easier burden of inventories. Any reversal of this situation would immediately transform the buying habits of consumers.

Industry's Dependents Attack It

IN A manner reminiscent of the foray of the Interchurch World Movement into the steel strike of 1919, two score southern bishops and ministers recently promulgated a program of industrial reform for the South, including a shorter work day and week, higher wage standards, elimination of mill villages and greater representation of labor. The vigorous rejoinder of John E. Edgerton, president of the National Association of Manufacturers and himself a southern manufacturer, effectually sets forth the problems and policies of southern industrialists. But Mr. Edgerton says further:

"American industry today is about the only thing in America that is looked upon with envy by the rest of the world. It has attained a higher degree of success than any of our professions or non-industrial pursuits, or any of our other institutions. Yet it is the object of more attack and more efforts are being made within and without to reform it than are made in any other direction. If the same degree of progress in the reformation of our political, religious, moral and educational lives had been made as has been made in our industrial life, America would have very much less to worry about."

This leaves little to be said except it is both inconsistent and inequitable that the two nonproductive institutions—the church and the university—which are dependent upon the profits of industry should so frequently be hostile to it. As Mr. Edgerton himself concedes, industry invites invasion by its "indifference to the process of organized preparedness." Eventually a class consciousness will be forced upon it.

What Our Readers Are Thinking

Federal Control Might Be Worse

IT IS amazing sometimes to hear business men inveigh against the antitrust laws and the policy of fair play which those laws prescribe. It is not too much to say that those men, in many cases, owe their existence as independent traders to the protection of the laws they condemn. Another frequent charge is that of antitrust laws militate against efficiency. Nothing could be farther from the truth. Efficiency is born of the stimulus and necessities of competition.

The irrefragable arguments in favor of private business over governmentally-operated business depend almost wholly on the existence and activity of the competitive principle, and once that factor is eliminated all the most important advantages of private business will vanish, while positive and overwhelming advantages will appear in favor of government business.

This outcry to the extent that it is directed against the enforcement of the laws against restraint of trade and unfair competition, is unwarranted, and I sometimes wonder whether those responsible for it have considered the possible alternatives. The experience of 1890 is ample warning that the people will not submit to a reign of license wherein their economic and social welfare and aspirations are at the mercy of a few powerful and designing men. It is inevitable that should existing restraints and regulations be removed, they would promptly be replaced by new and more onerous forms of regulation. There are many who now hold the view that business should enjoy the unrestricted right of combination, subject to the power of the government to fix prices, control earnings, establish standards of wages and employment, and generally to take over control of business.

In the long run it may be wiser to abide the bureaucrats who are content to umpire the game of business than to risk or invite the bureaucrats who would play the game for you.—ABRAM F. MYERS, *federal trade commissioner, in address to National Metal Trades association, Detroit, April* 26.

The Readers' Page

Vol. LXXX, No. 18 IRON TRADE REVIEW May 5, 1927

Four Conventions in Week; All Well "Covered"

FOUR important conventions were held last week, all well "covered" in this issue of IRON TRADE REVIEW. There is the annual meeting of the National Metal Trades association, and the meeting of the American Management association, in Detroit; the meeting of the American Welding society in New York, and that of the American Electrochemical society in Philadelphia. Business conditions in the metal trades were reviewed; management's new problems arising from low inventories were discussed; new direct processes for iron ore reduction were the central theme of the electrochemical group; and research in welding featured the meeting of that society. Many valuable facts and suggestions were developed at these gatherings; compactly presented for busy readers. This issue also contains the program of the American Foundrymen's association's June convention.

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The Business Trend

Steel Earnings Trend Downward

By JOHN W. HILL, Financial Editor

GENERALLY speaking earnings returns for the iron and steel industry during the first quarter of 1927 were unfavorable in view of the high rate of operations during the period. The output of steel ingots in the first three months was within 2 per cent of that for the corresponding period of 1926. In March, production actually climbed to a peak overtopping the March 1926 record.

YET the earnings of most iron and steel companies for the first quarter disclose rather sharp declines from one year ago, some ranging from 8 per cent to 41 per cent below 1926. There are a few exceptions, but these over 1926 are rare. The United States Steel Corp., was one of those showing increases, but it was a small one, being only 1 per cent. The first quarter net of $45,584,-725 actually was 15 per cent smaller than the net for the last quarter of 1926.

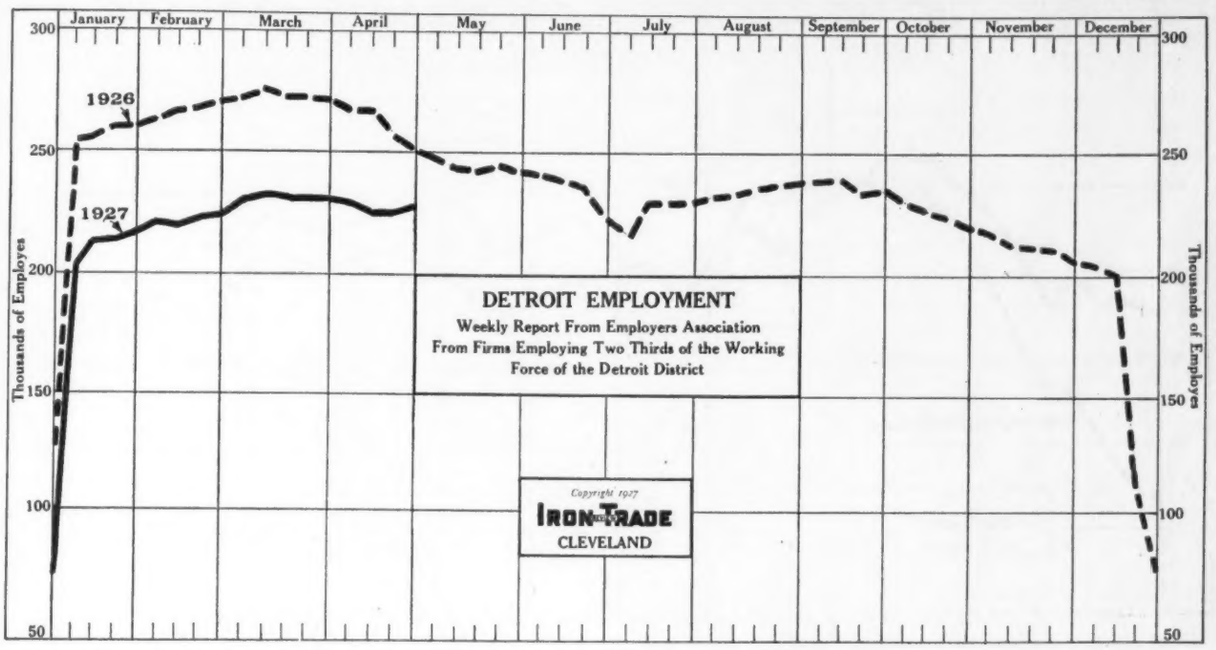
IN THE picture of profits in the industry is to be seen the shadowy background of price irregularity. Quotations for iron and steel since the first of the year have declined more than 3 per cent. They are now about 4 per cent below the levels prevailing 12 months ago. Unquestionably this situation is directly reflected in the first quarter statements of earnings.

IN OTHER words, there is an unmistakably declining margin of profit in the steel industry. It is caused by falling prices and apparently it cannot be completely checked by expanded production. During 1926 the industry was able to increase its net earnings by about 21 per cent, despite a falling price level, but the decline last year was so gradual as to be justly termed steady.

THIS year irregularity has been more pronounced. This was influenced by the rather severe slump at the end of the year when the automobile industry had the most drastic decline in its history. Producers of iron and steel started the new with order books more than thin and with the business atmosphere surcharged with uncertainty. The upshot was weakening of price spine to get business.

ORDINARILY it might be said that business was stimulated by price concessions in the first quarter to such an extend that a rather sharp reaction might be expected to result. But consumers apparently have not been induced to buy steel they did not need for current uses. Great consuming lines, particularly automobiles and building have done better than was expected. There is no present indication of anything more than a normal seasonal fluctuation for steel.

The Business Trend

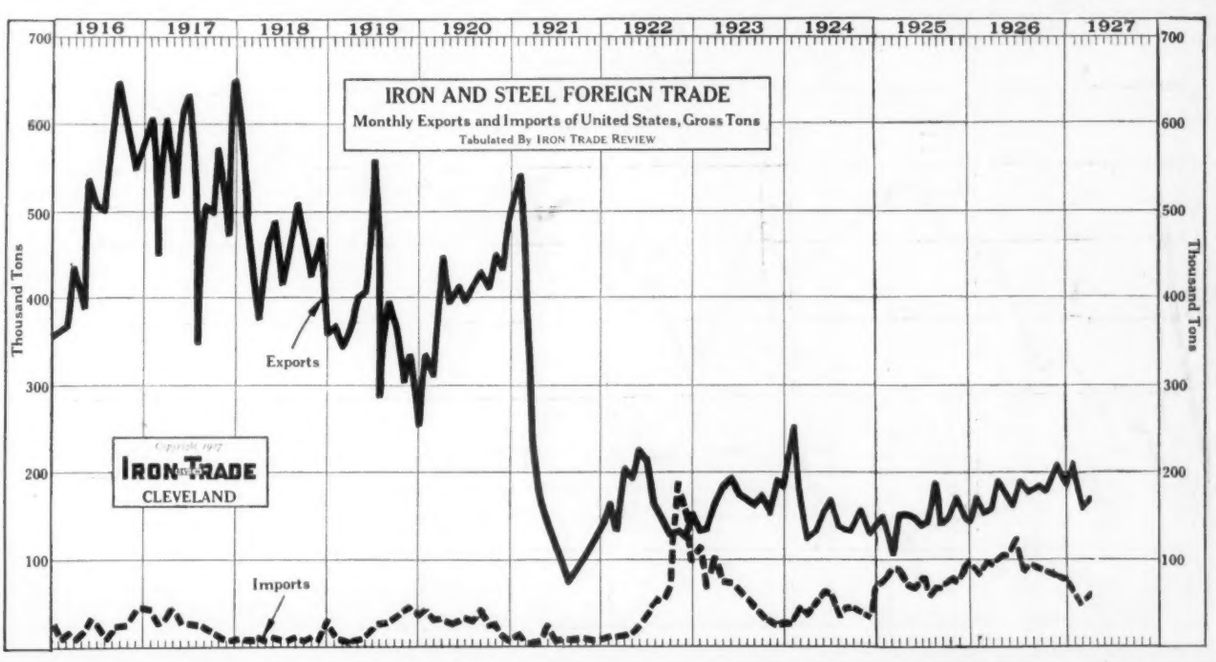


Detroit Employment

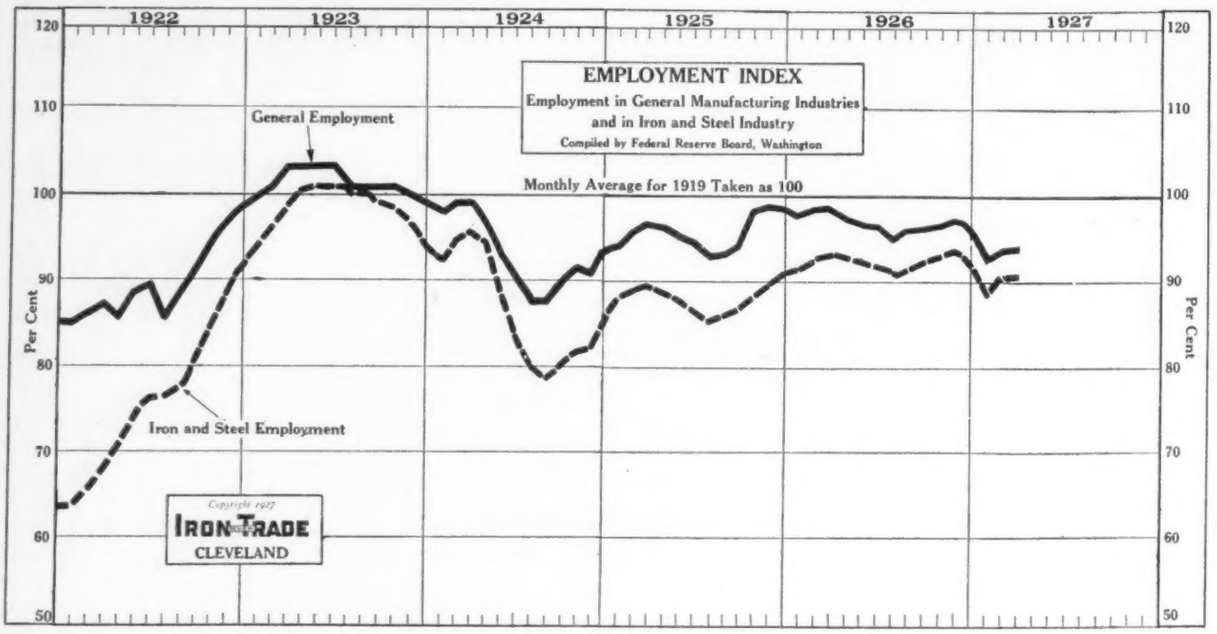
FOR the week ending April 26 the number of factory workers reported by the Employers' Association of Detroit was 226,363. This was a gain of 1715 over the previous week. It was a decrease of 25,215 from the corresponding week one year ago. A week before, the decline from 1926 was 34,000 and two weeks before the decline from 1926 was 41,000. These figures reflect considerable gains being made in the operations in the automobile industry relative to one year before.

Steel Foreign Trade

INCREASES for both imports and exports of iron and steel were reported for March compared with the preceding month. Exports totaled 171,094 tons compared with 166,128 tons in February and with 169,438 tons in March, 1926. Imports in March totaled 61,872 tons an increase over the total of 49,451 tons in February. Compared with March, 1926 there was a decline from the 93,107 tons for the month. For the first quarter exports showed a gain of 10 per cent over the corresponding period of 1926.



The Business Trend

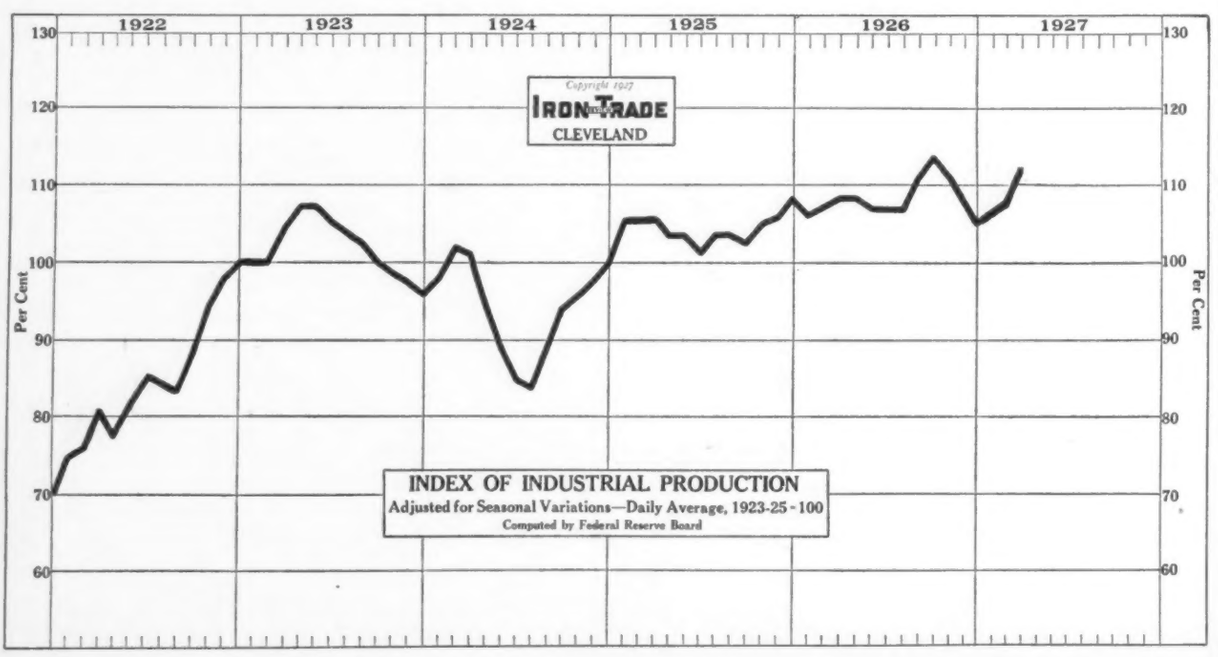


Employment Index

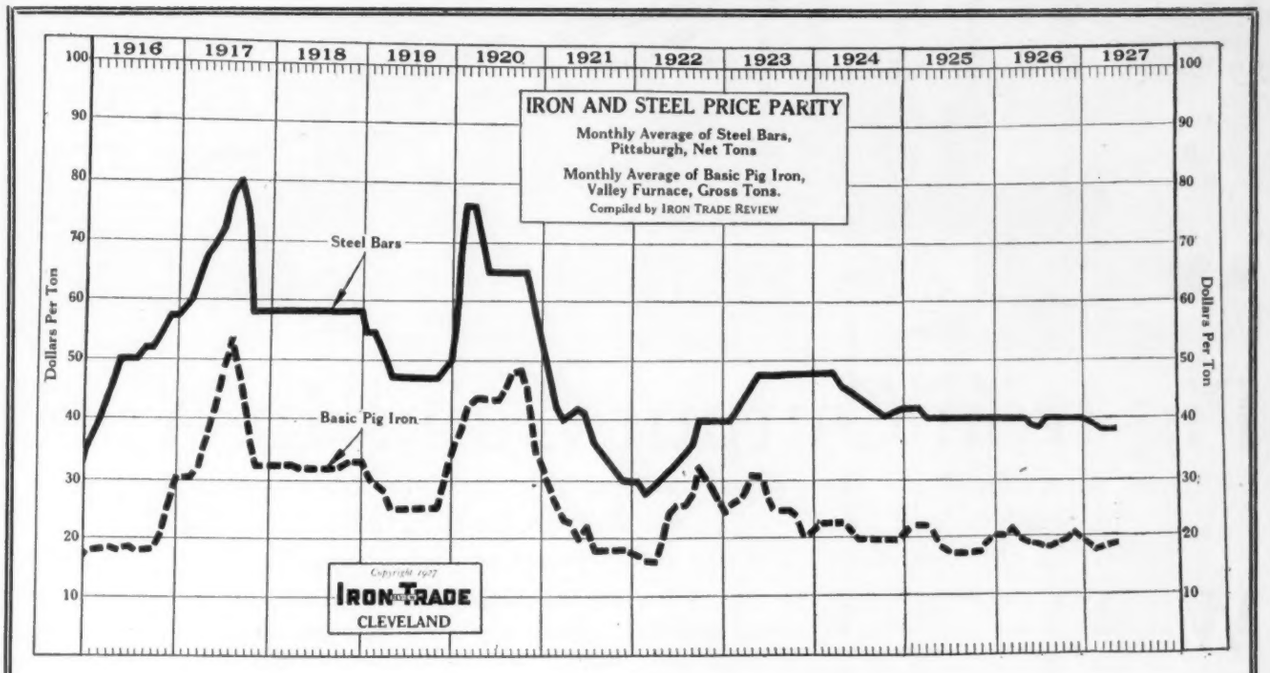
EMPLOYMENT in general industries and in the iron and steel industry has shown a steady gain since January. The level of employment, however, is lower than it was 12 months before. General employment in industries stood at an index of 93.9 in March compared with 93.6 in February and 98 in March, 1926. Employment in iron and steel mills stood at 90.3 in March compared with 90.1 in February and with 92.5 in March, 1926. Greater mill productivity is reflected by the figures.

Industrial Production

AFTER increasing continuously for three months industrial production in the country was larger in March, when allowances are made for usual seasonal changes, than in any month since last September. The index computed by the federal reserve board was at 112. This compared with 109 in February and with about 109 one year ago. Output of bituminous coal, crude petroleum and mill consumption of raw cotton in March were larger than in any previous month.



The Business Trend

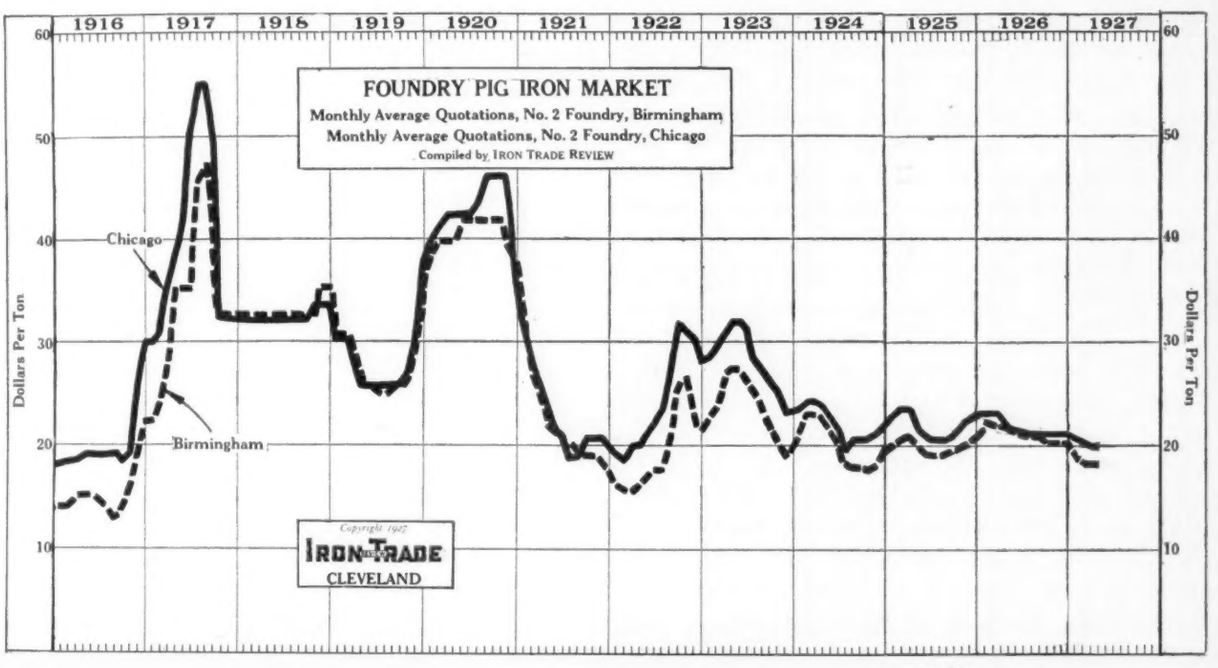

IRON AND STEEL PRICE PARITY
Monthly Average of Steel Bars, Pittsburgh, Net Tons
Monthly Average of Basic Pig Iron, Valley Furnace, Gross Tons.
Compiled by IRON TRADE REVIEW
Steel Bars
Basic Pig Iron
Dollars Per Ton
1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927
Copyright 1927
IRON TRADE
CLEVELAND

Steel Price Parity

THE spread between steel bars and pig iron prices has narrowed since the first of the year. In January steel bars at Pittsburgh were quoted at $39 a ton while basic valley pig iron was quoted at $18.50 a ton. This was a spread of $20.50 favorable to steel bars. During April pig iron was quoted at $19 a ton while steel bars at Pittsburgh were quoted at $38 a ton making the spread $19 a ton favorable to steel bars. One year ago with steel bars at $40 a ton and pig iron at $18.80 a ton the spread was $21.20 a ton.

Foundry Pig Iron Market

THE foundry pig iron market has held steady during the past two months. No. 2 foundry, Chicago, stood at $20 a ton during April unchanged from the level of March compared with $20.25 a ton in February. In January the figure was $20.90 a ton and in April, 1926 this grade of iron was selling at $22 a ton. Southern No. 2 Birmingham stood at $18 a ton during April, also unchanged from March and February. In January it was selling at $18.50 a ton and in April, 1926 the price was $22 a ton.


FOUNDRY PIG IRON MARKET
Monthly Average Quotations, No. 2 Foundry, Birmingham
Monthly Average Quotations, No. 2 Foundry, Chicago
Compiled by IRON TRADE REVIEW
Chicago
Birmingham
Dollars Per Ton
1916 1917 1918 1919 1920 1921 1922 1923 1924 1925 1926 1927
Copyright 1927
IRON TRADE
CLEVELAND

Pig Iron Output Gains In April

Passes March by Slight Margin and Is Third Best April on Record—New Business In Finished Steel Higher—Pig Iron Revives Slowly—Independent Sheet Makers Advance—Coal Strike Effect Still Is Negligible

WITH a daily average of 113,781 tons, production of pig iron in April forged ahead of the 112,326 tons in March and approximated the 114,627 tons of last April. Last month was the third best April in pig iron production history, being surpassed only by 1923, when the record was 118,210 tons, and by 1926. The total for April was 3,413,431 tons, compared with 3,482,107 tons in March and 3,438,805 tons last April. At the end of April 222 blast furnaces, one less than a month previous, were active.

This virility in blast furnace operations affords a gage of the underlying strength of the current iron and steel markets. Bookings of finished steel in most districts registered a gain in the past week, evidencing a revival of consumer interest which has lagged since the crest was passed in March. While demand for pig iron is still tinged with consumer indifference, inquiry for third quarter is slowly accumulating and furnaces display more eagerness for orders. Steel production has receded about two points this week, Steel corporation units operating about 91 per cent and the entire industry at 84 per cent.

Prices Move Up and Down

The price situation continues mixed. After many weeks of profitless price cutting, practically all independent sheetmakers have announced new bases of 3.85c, Pittsburgh, for galvanized, 3.00c for black. 2.25c for blue annealed and 4.25c for full-finished sheets. In some districts the increases are as much as $6 a ton. Business taken at the new levels is insufficient to provide a test. The heavy finished steel lines appear a shade firmer this week. Contrariwise, coke and pig iron tend toward easiness, shading continues in pipe and wire products, scrap is off 25 to 50 cents a ton in most districts, and both foreign and domestic ferromanganese has been reduced $5, followed by considerable contracting for the second half.

Basic pig iron receded 50 cents in the past week, to a basis of $18.50, Valley, with indications this level is none too firm. Pig iron sales have been made at Cleveland at $19.50, delivered, also a reduction of 50 cents. On sales into eastern territory, Buffalo levels display weakness. The merchant stack at Duluth has been blown out.

Pending Plate Work Heavy

Plates dominate the week's news in the heavy finished lines. At Chicago a total of 22,000 tons for tank work is now pending. Three Great Lakes freighters for which inquiry has developed at Cleveland will require 12,000 tons of plates and shapes. The Pennsylvania railroad has placed eight car floats.

Hopes for a good May in the Pittsburgh, Mahoning valley and Chicago districts are predicated somewhat upon the conviction that the present good operating rate of the automotive industry will continue through the month. Relatively, the demands of the industry have been most pronounced in the Chicago market.

Flood Needs Are Growing

Emergency flood requirements, especially for track material, are steadily mounting although not yet assuming large proportions. Normal business in the lower Mississippi valley, however, has been almost completely eliminated. The outlook is that considerable bridge work will develop in the reconstruction period. The Chicago district promises to benefit most from this situation.

Now that the bituminous coal strike is a month old, the iron and steel industry is taking its measure. Connellsville coke has grown progressively weaker, the furnace grade now being quoted at $2.85 to $3.25, compared with $3.25 to $4.25 when the strike broke, while distress lots are being offered as low as $2.75. The condition of

The Market Section

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	May 4, 1927	April 1927	Feb. 1927	May 1926
PIG IRON				
Bessemer, valley, del., Pittsburgh	$21.26	21.26	20.76	21.01
Basic, valley	18.50	19.00	17.85	18.25
Basic, eastern del., eastern Pa.	21.00	20.90	21.00	21.75
*No. 2 foundry, del., Pittsburgh	20.26	20.26	19.81	20.76
No. 2 foundry, Chicago	20.00	20.00	20.25	21.65
*Southern No. 2, Birmingham	18.00	18.00	18.00	22.00
*Southern Ohio, No. 2 Ironton	20.00	20.00	20.00	20.00
**No. 2X, Virginia furnace	22.00	22.00	22.00	23.00
**No. 2X, eastern, del. Phila.	22.26	22.26	22.26	23.01
Malleable, valley	18.50	18.50	18.10	19.00
Malleable, Chicago	20.00	20.00	20.25	21.65
Lake Superior charcoal, del. Chicago	27.04	27.04	27.04	29.04
Gray forge, val., del., Pittsburgh	19.76	19.76	19.31	20.26
Ferromanganese, del., Pittsburgh	99.79	104.79	104.79	92.79
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville, furnace, ovens	2.85	3.20	3.35	2.85
Connellsville, foundry, ovens	4.00	4.05	3.85	3.85
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngstown	34.00	34.25	36.00	36.00
Sheet bars, open-hearth, Pittsburgh	33.50	33.75	35.00	36.00
Billets, open-hearth, Pittsburgh	33.00	33.50	34.00	35.00
Wire rods, Pittsburgh	42.00	42.50	43.50	45.00
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.90	1.90	1.90	1.95
Steel bars, Chicago	2.00	2.00	2.00	2.00
Steel bars, Philadelphia	2.22	2.22	2.22	2.27
Iron bars, Philadelphia	2.22	2.17	2.22	2.22
Iron bars, Chicago	2.00	2.00	2.00	2.00
Shapes, Pittsburgh	1.90	1.90	1.90	1.90
Shapes, Philadelphia	2.07	2.12	2.12	2.22
Shapes, Chicago	2.00	2.00	2.00	2.10
Tank plates, Pittsburgh	1.85	1.85	1.85	1.90
Tank plates, Philadelphia	2.22	2.22	2.22	2.22
Tank plates, Chicago	2.00	2.00	2.00	2.10
Sheets, black, No. 24, Pittsburgh	2.75	2.80	2.90	3.20†
Sheets, blue anl., No. 10, Pittsburgh	2.20	2.20	2.20	2.45
Sheets, gal., No. 24, Pittsburgh	3.75	3.65	3.70	4.55†
Sheets, black, No. 24, Chicago	3.00	3.00	3.00	3.40†
Sheets, blue anl., No. 10, Chicago	2.40	2.40	2.35	2.65
Sheets, galvanized, No. 24, Chicago	3.90	3.90	3.85	4.65†
Wire nails, Pittsburgh	2.55	2.55	2.60	2.65
Wire nails, Chicago	2.60	2.60	2.60	2.70
Tin plate per base box, Pittsburgh	$5.50	5.50	5.50	5.50
†Based on No. 28 gage.				
OLD MATERIAL				
Heavy melting steel, Pittsburgh	15.50	16.50	16.10	16.00
Heavy melting steel, eastern Pa.	14.50	14.75	15.00	15.25
Heavy melting steel, Chicago	12.75	13.10	13.10	12.25
No. 1 wrought, eastern Pa.	16.75	16.75	17.00	17.35
No. 1 wrought, Chicago	13.25	13.50	13.95	12.55
Rails for rolling, Chicago	15.50	15.85	16.00	14.95

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (May 4, 1927)	$36.70
Last week (April 27, 1927)	36.64
One month ago (April, 1927)	36.73
Three months ago (February, 1927)	36.97
One year ago (May, 1926)	38.22
Ten years ago (May, 1917)	73.96
Fourteen years ago (May, 1913)	27.34

overproduction in the Connellsville district has been steadily growing more serious for producers. By-product coke in New England and in Wise county has been reduced this week. Coke consumers in practically all districts are using up their reserves, expressing no apprehension concerning supplies.

Definite inquiry by the Illinois Central railroad for 4500 freight cars brightens the prospect for car builders. For this order more than 50,000 tons of heavy finished steel will be required, probably going to Chicago mills.

The IRON TRADE REVIEW composite of fourteen leading iron and steel products this week is $36.70, compared with $36.64 a week ago and $36.97 three months ago.

Late News Flashes

Inland Blows Out a Stack

Chicago, May 3.—Inland Steel Co. has blown out one of its four blast furnace stacks at Indiana Harbor and when it is relined will take out another stack for repairs. Thirty of the 36 steel works stacks in the district now are active.

Valley Finishing Operations Hold

Youngstown, O., May 3.—May opens with steel ingot production slightly lower but finishing mill operations a shade higher. Steel corporation subsidiaries have an ingot average of 80 per cent and independents 68 per cent. Of the 127 independent sheet mills, 98 are active, one Niles, O., plant that was idle last week putting on five units Monday. Independent tin plate mills are running full. Strip operations continue at capacity. Skelp output is 75 per cent.

Corporation Sustains Pittsburgh Steel Rate

Pittsburgh, May 3.—High operating rates of Steel corporation subsidiaries offset some of the 60 to 65 per cent operations of independent interests and give an average of 75 per cent for steelmaking here. Carnegie Steel Co.'s skelp mill at Sharon, Pa., idle for two weeks, is to resume soon. With Carrie No. 2 and New Castle No. 4 blown out recently, Carnegie company now has 33 out of 51 blast furnace stacks active. National Tube Co. blew out its Lorain No. 2 stack April 26, leaving eight of its 11 in blast.

Believe Cost Reporting Will Be Dropped

Washington, May 3.—Legal division of the federal trade commission is understood to have recommended that further proceedings in connection with iron and steel cost reporting be abandoned. An opinion was asked following the United States Supreme Court decision overturning the injunction in the Claire Furnace case. General opinion is that the commission will take no further action, although at least one commissioner favors going further into the matter. The commission probably will act within a few days and meanwhile no official statement is made.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$33.00
Pittsburgh, bessemer	33.00
Youngstown	33.00
Cleveland	33.00
Philadelphia	40.30
Chicago	35.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	45.30

SHEET BARS

Pittsburgh	$33.50 to 34.00
Youngstown	34.00
Cleveland	34.00

SLABS

Pittsburgh	$33.00
Youngstown	33.00
Cleveland	33.00

WIRE RODS

Pittsburgh	$42.00
Cleveland	43.00
Chicago	43.00

Standard extras, $5 for screw stock: $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp	1.90c
Universal skelp, Pittsburgh	1.90c
Sheared skelp, Pittsburgh	1.90c

Standard Structural Shapes

Pittsburgh	1.90c
Philadelphia	2.02c to 2.22c
New York	2.09c to 2.19c
Chicago	2.00c to 2.10c
Cleveland	2.09c
Birmingham	2.05c to 2.15c
Pacific coast, c.i.f.,	2.35c

Steel Plates

Pittsburgh	1.80c to 1.90c
Philadelphia	2.12c to 2.22c
New York	2.14c to 2.24c
Chicago	2.00c to 2.10c
Cleveland	2.09c
Birmingham	1.95c to 2.05c
Pacific coast, c.i.f.,	2.30c

Iron and Steel Bars

Pittsburgh, soft steel	1.90c to 2.00c
Pittsburgh, cold finishing	2.05c
Pittsburgh, forging quality	2.05c
Philadelphia, soft steel	2.17c to 2.22c
New York, soft steel	2.19c to 2.24c
Chicago, soft steel	2.00c to 2.10c
Cleveland, soft steel, mill	1.90c
Cleveland, soft steel, del.	1.95c to 2.09c
Birmingham, soft steel	2.05c to 2.15c
San Francisco, soft steel	2.35c to 2.40c
Pittsburgh, refined iron	2.75c to 4.25c
Pittsburgh, reinforcing billet	1.90c
Chicago, reinforcing billet	2.30c to 2.60c
Chicago, reinforc. rail steel	2.10c to 2.55c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	1.90c to 2.00c
Mill, rail steel	1.75c to 1.80c
Philadelphia, common iron	2.12c to 2.22c
New York, common iron	2.14c to 2.24c
Chicago, common iron	2.00c

Hoops, Bands, Strips

Hoops, Pitts., 6 in. and under	2.30c
Bands, Pitts., 6 in. and under	2.30c
Bands, Pittsburgh, over 6 in.	2.10c
Hot rolled strip steel, Pittsburgh, stamping quality, over 6 in.	2.10c to 2.20c
Hot rolled strip steel, Chicago	2.30c to 2.60c
Bands, Chicago, under 6 inches	2.40c to 2.60c
Bands, Chicago, 6 in. and over	2.30c to 2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh	3.00c to 3.25c
Worcester Mass	3.90c
Chicago	3.30c to 3.50c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled, Pittsburgh, Chicago carloads	2.40c
Steel shafting, Pittsburgh, Chicago	2.40c
Cold finished steel bars, Cleveland	2.45c

Alloy Steel

Hot Rolled

Pittsburgh or Chicago

S. A. E. Series—	
2300 (3½ per cent nickel)	4.30c to 4.45c
3100 (Nickel chromium)	3.30c to 3.40c
6100 (Chrome vanad. forg.)	4.20c to 4.25c
6100 (Chrome vanad. spring)	3.60c to 3.80c
9250 (Silico-mang. spring)	3.10c to 3.20c

Cold Rolled

Cold rolled alloy steels take 1c a pound extra over hot rolled when mean carbon is 0.30 or under. When the carbon is above 0.30 the extra for cold rolled is 1.75c, including annealing.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open-h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relay, rails, Pitts., 60 to 70 lb.	26.00 to 27.00
Light rails, 25 to 45, mills	36.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.80c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	2.80c to 2.90c
Spikes, boat and barge, Pitts.	3.10c
Spikes, railroad, Chicago	2.90c
Track bolts, Pitts. stand	70 off list
Track bolts, Chicago	3.90c
Tie plates, Chicago, Pitts.	2.35c

Wire Products

To Jobbers in Carloads

Dealers 5 cents per 100 pounds extra
F.O.B. Cleveland and Pittsburgh base

Bright plain wire, No. 9 gage	2.40c
Annealed fence wire	2.55c
Galvanized wire, No. 9 gage	3.00c
Barbed wire, painted	3.00c
Barbed wire, galvanized	3.25c
	Per. 100 lbs.
Wire nails	$2.55
Galv'd nails, shorter than 1-in.	4.80
Galv'd nails, 1-in. and longer	4.55
Polished staples	3.00
Galvanized staples	3.25

Coated nails, 100 lb. kegs, subject to Sept. 1, 1926, extra card over wire nail base.

Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., Anderson, Ind., and Chicago prices $1 per ton over Cleveland-Pittsburgh base on products made there; Duluth $2 higher, Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 24, Pittsburgh base	2.75c to 3.00c
No. 24, Philadelphia, delivered	3.07c to 3.32c
No. 24, Gary, Indiana Harbor	2.95c to 3.05c
No. 24, Chicago, delivered	3.00c to 3.10c
No. 24, Birmingham, base	3.10c to 3.20c

TIN MILL, BLACK

No. 28, Pittsburgh	3.10c
No. 28, Gary base	3.20c

GALVANIZED

No. 24, Pittsburgh, base	3.75c to 3.85c
No. 24, Philadelphia, delivered	3.97c to 4.17c
No. 24, Gary, Indiana Harbor	3.80c to 3.85c
No. 24, Chicago, delivered	3.85c to 3.90c
No. 24, Birmingham, base	3.90c to 4.00c

BLUE ANNEALED

No. 10, Pittsburgh, base	2.20c to 2.25c
No. 10, Philadelphia, delivered	2.47c to 2.62c
No. 10, Gary, Indiana Harbor	2.35c to 2.45c
No. 10, Chicago, delivered	2.40c to 2.50c
No. 10, Birmingham, base	2.35c to 2.45c

AUTOMOBILE SHEETS

No. 20, Pittsburgh, base	4.15c to 4.25c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

*Tin plate, coke base	$5.50

Gary, Ind., base 10 cents higher.

Long ternes, primes, No. 24	4.20c

*This price is subject to quantity differentials established by individual regulations.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	13

Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del. 2½ points less.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 3¼ to 4½-inch	5
Seamless hot rolled 3¼ to 3½-inch	46 off

Further discounts of seven 5 per cents for carloads and six 5 per cents for less-carload, on lap welded steel. On seamless hot rolled several more 5 per cents.

Chain, Piling, Cut Nails

Chain, 1-in. proof coil. Pitts.	6.00c
Sheet piling base, Pittsburgh	2.20c to 2.25c
Cut nails, c. l., f.o.b. Mills	2.80c

Cast Iron Water Pipe

Prices per net ton
Class B Pipe

Four-inch, Birmingham	40.00 to 41.00
Six-inch and over, Birming'm	36.00 to 37.00
Four-inch, Chicago	47.20 to 49.20
Six-inch to 24-inch, Chicago	43.20 to 45.20
Over 24-inch, Chicago	45.20
Four-inch, New York	52.50 to 54.60
Six-inch and over, New York	48.60
Standard fittings, Bir. base	$110.00

6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $4 higher than Class B

Bolts and Nuts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Prices named are for legitimate jobbing or large consuming trade purchasing in full-case lots.

Discounts apply to lists of April 1, 1927.

CARRIAGE BOLTS

All sizes, cut thread	70 to 60 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Eagle list	65-10 off

MACHINE BOLTS

All sizes, cut thread	70 to 60 off

Rolled thread ⅝x6 and smaller take 10 per cent lower list.

Lag screws	70 to 60 off
Plow bolts, Nos. 1-2-3-7 heads	70 off
Tap bolts	70 off
Blank bolts	70 off
Stud bolts without nuts	70 off

Stove bolts, 80-10-5 off in packages; 80-10-5 with 2½ off in bulk.

Tire bolts	60-5 off

NUTS

Semifinished	70 to 60 off

HEXAGON CAP SCREWS

Milled	80-10-10 off
Upset 1-in. diam and smaller	85-5 off

SQUARE HEAD SET SCREWS

Milled	80-10 off
Upset, 1-in. diam. and smaller	80-10-10 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.75c
Structural rivets, c. l., Chi.	2.85c
**Rivets, 7/16-inch and smaller, Pittsburgh, Cleveland, 70, 10 and 5 to 70 and 10 off.	
**Rivets, 7/16-inch and smaller, Chicago	70, 10 and 5 to 70 and 10 off.

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chicago dist.	$6.75 to 6.90 off
Wrought c.l., Pitts. dist.	6.75 to 6.50 off
Lock washers	85 off

Pig Iron

Competition Keener, Markets Easier—Basic Marked Down 50 Cents—Third-Quarter Iron Offered at Present Prices

AFTER a lull of several weeks, competition in pig iron market is reviving. Shipments have been heavy, equaling or exceeding the April output of many producers. Furnaces show more eagerness for orders, and recent price advances are not being fully sustained. The valley market is a shade easier, though there is not sufficient business to test the general quotation of $18.50 on foundry and malleable iron. The price of basic, however, was marked down from $19 to $18.50 when that figure came out as a general quotation from valley furnaces on an inquiry for 2000 tons. Bessemer also is easier. Additional sales of iron have been made by Cleveland furnaces at 50 cents under the recent market, both within Cleveland and outside territory.

PITTSBURGH, May 3.—The principal development in the pig iron market is the sale of 2000 tons of basic to the American Steel Foundries, Verona, Pa., at a price understood to be $18.50, Pennsylvania steelworks furnace, having a freight rate of $1.13. No other inquiries for basic are pending. Valley furnaces are quoting $18.50, that being the minimum price named on the foregoing business. Those previously quoting $19 have set aside that price. Bessemer iron continues to be sold in small lots at $19.50, valley. That price is untested by large tonnage inquiries. The foundry grade continues to move heavily on contracts. Prompt sales are light, and occasionally carloads up to 500 tons are moved at $18.50, valley. Malleable iron is held at the same figure. No inquiries are pending, except from the Cincinnati district for shipment to Indiana. Valley furnaces are excluded because of the $1 higher freight rate.

According to compilations by W. P. Snyder & Co., bessemer pig iron in April averaged $19.50, compared with $19.39 in March. Basic pig iron in April averaged $18.72 against $18.57 in March.

Boston, May 3.—Competition among eastern blast furnaces is strong and buying is far from active. Several sales of Buffalo iron below $18, furnace, have been made. These run from 100 to 500 tons, one 500-ton lot going to Gilbert & Barker Mfg. Co., Springfield, Mass. Inquiry from Connecticut foundries includes a 1000-ton lot and several of from 300 to 500 tons. Prices at Everett, Mass., furnace, range from $20 to $21.

New York, May 3.—Buying of pig iron has been limited the past week. A favorable development, however, is that a number of foundries in this district have received new orders which are resulting in larger production. The general volume of business among foundries is considerably under that of March. Crane Bros., Bridgeport, Conn., wants 500 tons of special low phosphorus iron. Richmond Radiator Co. is understood to have bought 1200 tons of foundry iron for Norwich, Conn. Prices on foundry iron are unchanged, except that Buffalo foundry is somewhat easier and the range on Buffalo iron now is $17.50 to $18, base, furnace. Eastern Pennsylvania foundry continues $21, base, furnace. Sales of Lake Superior charcoal iron the past week have been unusually good. This iron is going at $24, Michigan furnaces, or $27.28, base, Buffalo.

Philadelphia, May 3.—The principal feature of the pig iron market are sales of low phosphorus iron amounting to 5000 to 6000 tons to consumers outside of this territory. Copper bearing, low phosphorus iron has been advanced $1 to $25, valley. Copper free, low phosphorus iron continues quotable at $25, furnace. New purchases of foundry iron are small, but shipments are satisfactory. Foundry iron continues quotable at $21, base, eastern Pennsylvania furnace.

Buffalo, May 3.—New inquiry for pig iron totals about 5000 tons, including 1000 tons of foundry for a district melter. Most inquiry is for third quarter on which a base of $18, with differentials, is quoted. Orders are small and some makers are having difficulty shipping their entire output. Twelve furnaces are in blast and nine are idle.

Cleveland, May 3.—Blast furnace interests generally are booking orders for third quarter at present prices, but demand is not active. Sales the past week by companies represented here totaled 10,000 tons, about half of it for third quarter. Shipments in April were satisfactory to makers, equaling output of some interests and in one instance exceeding it. A Cleveland furnace recently stated it would drop to $19, base, Cleveland, if necessary to shut out valley competition, since which time another Cleveland producer has booked several small orders at that price. The market here is $19 to $19.50, base, furnace, for local delivery, and $18 to $18.50 for outside shipment. The reduction of 50 cents has not brought out many orders.

Chicago, May 3.—Northern pig iron sellers are holding firmly to $20, Chicago furnace, for No. 2 foundry and malleable in immediate Chicago territory. In competitive freight territory, $20 is being shaded to meet St. Louis competition in the Tri-Cities and south central Illinois territory, and east of the Chicago district in Michigan to meet Detroit and Toledo competition. Spot sales are light. Sales include 300 tons of foundry to a Quincy, Ill., melter and 1000 tons of foundry in the Tri-Cities district. The price is firm for Milwaukee district sales. Buyers display little interest in third quarter requirements. One inquiry has appeared for 500 tons of foundry for last half, but comparatively little iron has been sold for shipment beyond June 30.

The Zenith furnace has been blown out for repairs. This leaves four

(*Concluded on Page* 1179)

Pig Iron Prices

Per gross ton

Bessemer, valley furnace	$19.50
Bessemer, del. Pittsburgh	21.26
Basic, valley furnace	18.50
Basic, del., Pittsburgh	20.26
Basic, Buffalo furnace	17.25 to 17.75
Basic, del., eastern Pa.	20.75 to 21.00
Malleable, valley furnace	18.50
Malleable, del., Pittsburgh	20.26
Malleable, del., Cleveland	19.50 to 20.00
Malleable, Chicago furnace	20.00
Malleable, Buffalo furnace	17.75 to 18.00
Malleable, del., eastern Pa.	22.00 to 22.50
No. IX Eastern del., Phila.	22.76 to 23.13
No. IX, Buffalo furnace	18.50 to 19.00
No. 1 foundry, Chicago furnace	20.50
No. 2 foundry, valley furnace	18.50
No. 2 foundry, del. Pittsburgh	20.26
No. 2 fdy., Everett, Mass., fur.	20.50 to 21.50
No. 2 foundry, Buffalo furnace	17.75 to 18.00
No. 2 foundry, Chicago furnace	20.00
No. 2 foundry, Granite City	20.50 to 21.00
No. 2 foundry, Ironton furnace	20.00
No. 2 foundry, del., Cleveland	19.50 to 20.00
No. 2 foundry, del., Phila.	21.76 to 22.13
No. 2 foundry, N. J., tidewater	20.79 to 22.76
No. 2X east, N. J., tidewater	21.29 to 23.26
No. 2X, eastern del., Phila.	22.26 to 22.63
No. 2X, foundry, Buffalo fur.	18.00 to 18.50
No. 2X, eastern del., Boston	23.65 to 24.65
No. 2X, Buffalo, del., Boston	22.91 to 23.41
No. 2 Alabama, Birmingham	18.00
No. 2 Alabama, del. Cincinnati	21.69
No. 2 Tenn., Birmingham base	18.50
No. 2 Tenn. ,del. Cincinnati	22.10
No. 2 Alabama, del. Philadelphia	24.01
No. 2 Alabama, del. Chicago	24.01
No. 2 Ala., del Chicago river-rail	22.18
No. 2 Ala., del., Boston, rail-water	24.91 to 25.91
No. 2 Alabama, del. Cleveland	24.01
No. 2 Alabama, del. St. Louis	23.42
No. 2X, Virginia furnace	22.00
No. 2X, Virginia, del. Phila.	27.17
No. 2X, Virginia, del., Jers. City	27.54
No. 2X, Virginia, del. Boston	27.92
Gray forge, delivered eastern Pa.	21.00
Gray forge, val., del. Pittsburgh	19.76
Low phos., standard, valley	28.00
Low phos., standard, Phila	25.76 to 29.79
Low phos., copper bearing fur.	24.00 to 25.00
Charcoal, Birmingham	29.00
Charcoal, Superior, del. Chicago	27.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $25.50; 6 per cent $26.50; 7 per cent $27.50; 8 per cent $28.50; 9 per cent $30.00; 10 per cent $32.00; 11 per cent $34.00; 12 per cent $36.00; 13 per cent $38.00; and 14 per cent $40.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $34.00; 11 per cent $36.00; 12 per cent $38.00; 13 per cent $40.00; and 14 per cent $42.00; 15 per cent $44.50; 16 per cent $47.00; 17 per cent $49.50.

Coke

Connellsville Prices Working Lower—Furnace Fuel Sold at $2.75—Better Demand in East

CONNELLSVILLE furnace coke prices continue to settle and further curtailment of production is contemplated. Distress lots have been offered as low as $2.75, while some operators quote $2.85 on coke to be produced. Furnace inquiries are lacking. Some improvement in foundry demand is noted in eastern districts.

Pittsburgh, May 3.—Decline in production of beehive coke is not yet sufficient to stem the tide of low prices. Further curtailment of operations is expected, as the present spot market prices are said to be ruinous on a wage basis of $6. Consumers are approached every day with quotations of $2.75 and up, though most of the low price coke is of a distress character. Coke to be produced is selling unusually at $3 to $3.25, while some operators are willing to take orders of $2.85. One formerly quoting $3.15 as a minimum now is quoting $3 and is selling small lots. No blast furnaces are inquiring, contracts shipments being adequate. Foundry coke demand increased slightly in the past week, and several sales were made at $4 and $4.75. Some distress foundry fuel, not all of which was off grade, was sold at $3.75 and $8.85. Two premium brands are selling at $5.50.

Production of coke in the Connellsville region in the week ended April 23 was 129,260 tons, against 133,830 tons in the preceding week, according to the *Connellsville Courier*.

New York, May 3.—Some improvement is shown in coke, with a fair volume of sales for spot shipment. Spot foundry coke continues $4.25 to $4.75, Connellsville, with premiums for special brands, and spot furnace coke is $3.25 to $3.50. The two New England by-product coke producers have made a 50-cent reduction on foundry coke effective yesterday, and quote $12, delivered at New England consuming points. The northern New Jersey by-product coke producers continue to quote $9.59 to $10.77, delivered, at Newark and other northern New Jersey consuming points, depending on the freight rates.

Cincinnati, May 3.—Foundry coke shipments on specifications are light. Connellsville foundry coke is stronger. Wise county furnace coke is $4 to $5 against $4.25 to $4.50 a week ago. May prices for New River coke range from $7.50 to $8.

Detroit, May 3.—Demand for foundry coke continues about normal for this season. Local foundries, while operating on comparatively heavy schedules, are purchasing fuel only for immediate requirements. The price is steady at $9.50, ovens.

St. Louis, May 3.—The recent slowing in the melt at mills and foundries in this district is reflected in smaller demand for and movement of metallurgical coke. There have been some requests to hold back shipments. The average of users' stocks is considerably greater than at this season in the past five years. Operations at by-product plants have been slightly curtailed, due to reduced demand and interference with coal deliveries by the floods.

Birmingham, Ala., May 3.—The coke market continues fairly good, though some easing off is noted. Production has not been reduced much. By-product foundry coke is steady at $5.50 to $6. A little beehive foundry coke is being manufactured to meet demands, and is offered at $6.

Coke Prices

Beehive Ovens

Prices per net ton

Connellsville furnace	2.85c to 3.25
Connellsville foundry	4.00 to 4.75
New River foundry	7.00 to 8.00
New River furnace	6.00
Wise county furnace	4.25 to 5.00
Wise county foundry	4.00 to 5.00
Alabama foundry	6.00

By-Product

Foundry, Newark, N. J.; del.	9.59 to 10.77
Foundry, Chicago, ovens	9.75
Foundry, New England, del.	12.00
Foundry, St. Louis	9.75 to 10.00
Foundry, Birmingham	5.50 to 6.00
Foundry, Indianapolis, del.	10.25
Foundry, Ashland, Ky.	7.50
Foundry, Portsmouth, O.	7.50

Ferroalloys

Ferromanganese Reduced $5—Second Half Orders Taken at $95

New York, May 3.—Ferromanganese has been cut $5 a ton. Following a reduction in the British home market price, British producers last Thursday started to offer material here at $95, duty paid, tidewater. Domestic interests followed suit and notified their customers that shipments of ferromanganese, beginning with Thursday, would be billed at $95. In addition, producers have opened their books for second half, and have booked a number of tonnages at $95. A large portion of important requirements already has been placed, and other large consumers are negotiating. In the meantime, shipments on first half contracts continue at the improved rate recently reported. Spiegeleisen is featured by second half contracting, which is being done at prices ranging from $35.50 to $37, furnace, for the 19 to 21 per cent grade. A substantial portion of second half requirements of important users already is on the books. Both English and German spiegeleisen are being offered at prices ranging from $36 to $37, duty paid, tidewater, but no sales of importance are reported.

Tungsten ore is somewhat stronger, at $10.75 per short ton unit. Ferrotungsten is 98 cents to $1. Other alloys are steady.

Pittsburgh, May 3.—New business in ferroalloys is light. A $5 decline in English ferromanganese, to $95, c.i.f. Atlantic seaboard, was followed by American producers Thursday. Their $95, seaboard base, applies on new business and on specifications filed from that time forward. Spiegeleisen is unchanged at $37, furnace, with no new inquiries. Other alloys are fairly active as to specifications, but new business is lacking, especially on 50 per cent ferrosilicon. Occasionally a carload or two of low grade ferrosilicon is bought at full market prices. Consumers are not carrying heavy stocks, and specifications are for prompt shipment.

Chicago, May 3.—Several prompt carload lots of spiegeleisen have been sold at $37, base. This quotation is steady for prompt shipment. Foreign spiegeleisen is being offered at $36 to $36.50 for 19 to 21 per cent. Inquiry is light. Contract prices for ferromanganese are being marked down from $100 to $95, seaboard.

New Britain Gets Semet-Solvay Gas Plant

Gas consumers of New Britain, Conn., will soon be supplied with fuel from a completely new and modern water gas plant, being built for the New Britain Gas Light Co. by the Semet-Solvay Engineering Corp., New York. It will produce 3,000,000 cubic feet of gas a day.

Beginning with the system of feeding fuel to the generator by a patented charging machine, the making of gas will be completely automatic. Another advanced feature will be the spraying of water into the superheater, instead of process steam, thereby reducing by one half the need of making this steam for production purposes.

Ferroalloy Prices

Ferromanganese, 78 to 82 per cent, tidewater, duty paid	$95.00
Ferromanganese, del., Pittsburgh	99.79
Spiegeleisen, 19 to 21 per cent domestic furnace	37.00
Ferrosilicon, 50% frt. allowed	85.00 to 87.50
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. per lb. con., del.	11.50
Ferrotungsten stand. lb. cont.	1.00
Ferrovanadium, 30-40 per cent, per lb. estimated on analysis	3.15 to 3.65
Ferro-carbon-titanium carload, producers plant, net ton	200.00
Ferrophosphorus, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18%)	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23-25% f.o.b. Anniston, Ala., (24%)	122.50

Plates

Sales Moderate, Prices Steady —Three Great Lakes Boats Being Figured—Carfloats Placed

PLATE bookings generally are small, and the volume is not impressive. About 2000 tons additional oil tankage has developed at Chicago, making the total pending 20,000 to 22,000 tons. The Pennsylvania railroad has placed eight carfloats. Figures are being taken on three Great Lakes steamers requiring in all 12,000 tons of plates and shapes.

PLATE PRICES, PAGE 1164

Philadelphia, May 3.—Plate demand is well maintained, eastern mills operating at 50 to 60 per cent, while one mill was able to expand to around 80 per cent temporarily. The usual price is 1.90c, Pittsburgh, but 1.85c is more frequent and several consumers using moderate tonnages report doing 1.80c.

The Pennsylvania railroad has placed eight carfloats, orders going to the Sun Shipbuilding Co., the American Brown Boveri Electric Corp. and the Federal Shipbuilding & Dry Dock Co.

Boston, May 3.—Demand for steel plates continues to fall off. According to a leading seller April sales were 15 per cent under March. The price range is 1.85c to 1.90c, Pittsburgh.

New York, May 3.—Demand for plates continues to decline somewhat although bookings are at a rate only a little below March. Buying continues hand-to-mouth and there is a lack of large tonnages. Undoubtedly for this reason 1.90c, base, Pittsburgh, continues to figure in the majority of cases, with 1.85c being done infrequently, when an attractive tonnage brings it out.

Pittsburgh, May 3.—Plate bookings are fairly active in lots below 500 tons. While some large fabricators are receiving plates on 1.80c contracts, the usual price is 1.90c, and most preferential customers are unable to do better than 1.85c. The next large plate lettings to come up here are 3500 and 1800 tons, respectively, May 14 and May 16, for government barges.

Cleveland, May 3.—Twelve thousand tons of plates and shapes—mostly plates—will be required for three lake steamers which have come out for figures. Two are large bulk freighters for the Pittsburgh Steamship Co. and the third is a small ship for another interest. For the year to date, plate business compares well with last year. The most general quotation is 1.90c, Pittsburgh.

Chicago, May 3.—Oil storage business, which has accounted for heavy tank plate activity in this district, has eased off slightly as to new buying. On the other hand, pending inquiry is large. About 2000 tons of additional tank plate inquiry during the week brings the total pending tonnage to 20,000 to 22,000 tons. Plate deliveries are two to three weeks deferred. The bulk of tankage is moving at 2.00c, but smaller buyers are required to pay 2.10c, Chicago.

CONTRACTS PLACED

5000 tons, 10,000,000-cubic foot gas holder for Long Beach, Calif., to Stacy Bros. Gas Construction Co.
2100 tons, penstock for Feather River Power Co., San Francisco, Bucks Creek project, to Western Pipe & Steel Co.
1800 tons, 600 underframes for Pacific Fruit Express Co., Seattle, to Pacific Car & Foundry Co.
799 tons, penstock for Pacific Gas & Electric Co., San Francisco, 550 tons of which went to Western Pipe & Steel Co. and 249 tons to Steel Tank & Pipe Co.
120 tons, pipe line for Monterey Park, Calif., to Western Pipe & Steel Co.
100 tons, pipe line for Ramona irrigation district, Ramona, Calif., to Western Pipe & Steel Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

12,000 tons, plates and shapes, three bulk freighters, two for Pittsburgh Steamship Co.
1500 tons, new waterworks system, Astoria, Oreg.; bids in May 13.
450 tons, three maneuvre boats, 60 x 22 x 4 feet for United States federal engineers, Pittsburgh; Dravo Contracting Co., Neville Island, recommended for award on its low bid of $22,050 per boat.
400 tons, pipe line, Arcadia, Calif.; bids in May 18.
300 tons, two barges for Wheeling Steel Corp., Wheeling, W. Va.; bids being taken.
200 tons, two small barges, United States federal engineers, Pittsburgh; bids about to be asked.
160 tons, pipe line, Beverley Hills, Calif.; bids in May 9.
100 tons, pipe line for Talent irrigation district, Talent, Oreg.; bids received.
Tonnage unstated, stills, oil tanks, etc., for refinery at Saginaw, Mich., for Standard Oil Co. of Indiana; early action expected.

Semifinished

Market Is Steady, With Lower Price on Wire Rods in East—Carry Over Tonnage

NEW orders for semifinished steel are light, though among the week's transactions is noted the sale of a large tonnage of slabs to a Pennsylvania platemaker. Some consumers are carrying over steel that was due them in April. Prices on sheet bars, billets and slabs are steady. Wire rods have been marked down from $43 to $41 and $42 in the East.

SEMIFINISHED STEEL PRICES, PAGE 1164

Pittsburgh, May 3.—Semifinished steel buyers are not rushing in their May orders. While a few have closed, including Universal Steel Co., which purchased a large quantity of slabs, others are carrying over tonnage which will last them part of the month. While some makers of billets and slabs adhere to $34, others are quoting $33. Forging billet specifications are fairly active on $40 contracts from engine manufacturers, makers of tools and others. A few orders for one or two carloads apiece were received yesterday. Skelp is held generally at 1.90c, without much demand. Wire rods are selling at $42 here, and no $40 quotations have been uncovered.

New York, May 3.—A decline in wire rods is the principal feature of the semifinished steel market here. The $43, base, Pittsburgh, price practically has disappeared and the prevailing range is $41 to $42. As low as $40 was done on some especially attractive business but the latter price appears to be no factor in the general market.

Philadelphia, May 3.—The billet market here has resisted pressure for lower prices. Sales in the past week brought $35, Pittsburgh for rerollers, and $40 for forging. Comparatively small tonnage is involved.

Youngstown, O., May 3.—Purchases of semifinished steel are for quick consumption, and generally are limited to small lots. Sheet bars are being shipped more steadily by producers than several weeks ago. Billets move only as needed, but the volume is fair. Sheet bars and small billets hold to $34, and billets and slabs to $33, Youngstown mill.

Cleveland, May 3.—Some improvement in specifications for sheet bars, billets and slabs has enabled the leading independent maker here to increase its number of active openhearths from nine to ten. This interest continues to quote $34, Cleveland or Youngstown, on sheet bars and $33 on billets and slabs. New demand is quiet.

Chicago, May 3.—Semifinished market is quiet. Little buying of billets is reported, but consumption continues heavy. The Chicago price holds at $35, base.

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross Tons Delivered to Consumers

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	12.00 to 13.00
Boston (dealers)	10.00 to 10.50
Buffalo, No. 1	15.50 to 16.00
Buffalo, No. 2	14.50 to 15.00
Chicago	12.75 to 13.25
Cincinnati (dealers)	12.25 to 12.75
Cleveland, No. 1	14.00 to 14.25
Cleveland, No. 2	13.00 to 13.25
Detroit, No. 1	12.50 to 13.00
Eastern Pennsylvania	14.00 to 15.00
Bethlehem delivery	14.00 to 15.00
New York (dealers) (railroad)	10.50 to 11.85
New York (dealers) (yard)	8.00 to 8.25
Pittsburgh, No. 1	15.50 to 16.00
St. Louis	11.75 to 12.25
Valleys, No. 1	16.50

COMPRESSED SHEETS

Buffalo	14.50 to 15.00
Chicago	11.25 to 11.75
Cleveland	13.50 to 13.75
Detroit	11.50 to 12.00
Pittsburgh	14.50 to 15.00
Valleys	15.00 to 15.50

BUNDLED SHEETS

Buffalo	10.75 to 11.25
Cincinnati (dealers)	10.00 to 10.50
Cleveland	12.00 to 12.50
Eastern Pennsylvania	11.00 to 12.00
Pittsburgh	13.50 to 14.00
St. Louis	8.50 to 9.00

SHEET CLIPPINGS, LOOSE

Chicago	8.25 to 8.75
Cincinnati	9.00 to 9.50
Detroit	8.50 to 9.00
St. Louis	8.00 to 8.50

STEEL RAILS, SHORT

Birmingham	12.50 to 13.00
Buffalo	14.00 to 15.00
Chicago	16.25 to 16.75
Cincinnati (dealers)	17.00 to 17.50
Detroit	12.50 to 13.00
St. Louis	15.50 to 16.00

STOVE PLATE

Birmingham	13.00 to 14.00
Boston(consumers)	12.00 to 12.50
Buffalo	14.50 to 15.00
Chicago (net)	13.25 to 13.75
Cincinnati (dealers) (net)	9.00 to 9.50
Cleveland	12.00 to 12.50
Detroit (net tons)	12.00 to 12.50
Eastern Pennsylvania	12.50 to 13.00
New York (dealers) (mill)	8.25 to 8.75
Pittsburgh	12.50 to 13.00
St. Louis	14.50 to 15.00

LOW PHOSPHORUS

Buffalo, billet and bloom crops	17.25 to 17.75
Cincinnati (dealers)	16.00 to 16.50
Eastern Pennsylvania	18.00 to 19.00
Pitts. billet and bloom crops	19.50 to 20.00
Cleveland, billet and bloom crops	17.00 to 17.50

SHOVELING STEEL

Chicago	12.50 to 13.00
Pittsburgh	11.50 to 12.00
St. Louis	11.75 to 12.25

KNUCKLES, COUPLERS, SPRINGS

Chicago	15.50 to 16.00
Eastern Pennsylvania	17.00 to 18.00
Pittsburgh	18.00 to 18.50
St. Louis	13.50 to 14.00

FROGS, SWITCHES, GUARDS

Chicago	14.50 to 15.00
St. Louis	12.50 to 13.00

ANGLE BARS—STEEL

Buffalo	15.25 to 15.75
Chicago	14.00 to 14.50
St. Louis	13.00 to 13.50

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	11.00 to 12.00
Boston (dealers)	11.50 to 12.00
Buffalo, No. 1	13.50 to 14.00
Buffalo, No. 2	14.75 to 15.25
Chicago, No. 1	13.25 to 13.50
Chicago, No. 2	12.75 to 13.25
Cincinnati, No. 1 (dealers)	12.00 to 12.50
Cleveland, No. 1	11.50 to 12.00
Eastern Pennsylvania	16.50 to 17.00
New York, No. 1 (dealers)	14.00 to 14.50
Pittsburgh, No. 1	12.50 to 13.00
Pittsburgh, No. 2	15.50 to 16.00
St. Louis, No. 1	11.50 to 12.00
St. Louis, No. 2	11.75 to 12.25

WROUGHT PIPE

Boston (dealers)	8.50 to 9.00
Eastern Pennsylvania	13.50 to 14.00
Buffalo	13.00 to 13.50
New York (dealers)	9.00 to 9.50

YARD WROUGHT

Boston	10.50 to 11.00
Eastern Pennsylvania	16.50 to 17.00

BUSHELING

Buffalo	14.50 to 15.00
Chicago, No. 1	11.25 to 11.75
Chicago, No. 2	9.00 to 9.50
Cincinnati, No. 1 (dealers)	10.00 to 10.50
Cincinnati, No. 2	8.00 to 8.25
Pittsburgh, No. 1	13.00 to 13.50
St. Louis, No. 1	10.00 to 10.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston	6.00 to 6.50
Buffalo	9.50 to 10.00
Chicago	7.25 to 7.75
Cincinnati (dealers)	8.00 to 8.25
Cleveland	9.00 to 9.25
Detroit	7.75 to 8.25
Eastern Pennsylvania	11.00 to 12.00
New York (dealers)	7.00 to 7.50
Pittsburgh	11.50 to 12.00
St. Louis	6.75 to 7.25

CAST IRON BORINGS

Birmingham (chemical)	13.00 to 14.00
Birmingham (plain)	8.00 to 8.50
Boston, chemical	10.50 to 11.00
Boston (dealers)	7.00 to 7.50
Buffalo	11.75 to 12.25
Chicago	10.50 to 11.00
Cincinnati (dealers)	9.00 to 9.50
Cleveland	11.00 to 11.25
Detroit	8.75 to 9.25
Eastern Pennsylvania	12.00
Eastern Pennsylvania (chem.)	15.50 to 16.00
New York (dealers)	7.75 to 8.25
Pittsburgh	11.50 to 12.00
St. Louis	9.00 to 9.50
Valleys	13.50

MIXED BORINGS AND TURNINGS

For blast furnace use

Boston (dealers)	6.00 to 6.50
Buffalo	11.25 to 11.75
Cincinnati (dealers)	9.00 to 9.50
Cleveland	11.00 to 11.25
Detroit	8.75 to 9.25
Eastern Pennsylvania	10.50 to 11.00
New York (dealers)	7.75 to 7.85
Pittsburgh	11.50 to 12.00

PIPES AND FLUES

Chicago (net)	7.50 to 8.00
Cincinnati (dealers)	8.00 to 8.50
St. Louis	8.50 to 9.00

RAILROAD GRATE BARS

Buffalo	12.50 to 13.00
Chicago (net)	12.25 to 12.75
Cleveland	12.00 to 12.50
Eastern Pennsylvania	13.00 to 13.50
New York (dealers)	8.50 to 9.00
St. Louis	12.25 to 12.75

FORGE FLASHINGS

Boston (dealers)	7.00 to 7.50
Buffalo	13.00 to 13.50
Chicago	9.25 to 9.75
Cleveland (over 10 in.)	12.50 to 13.00
Detroit	10.50 to 11.00
Pittsburgh	13.00 to 13.50

FORGE SCRAP

Boston (dealers)	7.00 to 7.50
Chicago	16.00 to 16.50
Eastern Pennsylvania	12.00 to 12.50

ARCH BARS AND TRANSOMS

Chicago (net)	18.75 to 19.00
St. Louis	19.00 to 19.50

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	8.00 to 8.50
Buffalo	13.50 to 14.00
Chicago	11.25 to 11.75
Cleveland	12.00 to 12.50
Eastern Pennsylvania	13.00 to 13.50
Pittsburgh	14.00 to 14.50
St. Louis	9.00 to 9.50

STEEL CAR AXLES

Birmingham	16.00 to 17.00
Boston (shipping point)	16.00 to 16.50
Buffalo	16.50 to 17.00
Chicago	19.60 to 20.15
Cleveland	16.00 to 16.50
Eastern Pennsylvania	20.00 to 21.00
Pittsburgh	20.50 to 21.00
St. Louis	19.00 to 19.50

SHAFTING

Boston (shipping point)	14.50 to 15.00
Chicago	18.50 to 19.00
Eastern Pennsylvania	20.00 to 21.00
New York (dealers)	15.00 to 15.50
St. Louis	17.50 to 18.00

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	14.00 to 14.50
Boston (consumers)	17.00 to 17.50
Buffalo, iron	16.00 to 16.50
Buffalo, steel	17.00 to 17.50
Chicago, iron	14.50 to 15.00
Chicago, steel	15.50 to 16.00
Cincinnati	13.50 to 14.00
Eastern Pennsylvania	16.50 to 17.00
New York iron (dealers)	12.50 to 13.50
Pittsburgh, iron	16.00 to 16.50
Pittsburgh, steel	18.00 to 18.50
St. Louis, iron	14.00 to 14.50
St. Louis, steel	13.50 to 14.00

No. 1 CAST SCRAP

Birmingham, cupola	15.00 to 16.00
Boston	18.00 to 18.50
Buffalo	16.00 to 16.50
Chicago, No. 1 machinery	17.35 to 18.00
Chicago, No. 1 railroad	16.75 to 17.35
Chicago, No. 1 agricultural	16.25 to 16.75
Cincinnati No. 1 machinery cupola (net tons dealers)	15.50 to 16.00
Cleveland, cupola	15.75 to 16.25
Detroit (net tons)	14.00 to 14.50
Eastern Pennsylvania ,cupola	17.00 to 17.50
New York, cupola (dealers)	14.00 to 14.50
Pittsburgh, cupola	16.00 to 16.50
San Francisco, delivered	20.00 to 21.00
Seattle	16.50
St. Louis, railroad	15.00 to 15.50
St. Louis, agricultural	15.50 to 16.00
St. Louis, machinery	18.00 to 18.50
Valleys	16.50 to 17.00

HEAVY CAST

Boston	15.00 to 15.50
Buffalo (breakable)	13.75 to 14.25
Cleveland	12.50 to 12.75
Detroit (automobile) (net tons)	17.50 to 18.50
Eastern Pennsylvania	15.50 to 16.00
New York (dealers)	13.00 to 13.50
Pittsburgh	14.50 to 15.00

MALLEABLE

Boston, railroad	15.50 to 16.00
Buffalo	17.00 to 17.50
Chicago, agricultural	14.25 to 14.75
Chicago, railroad	15.25 to 15.75
Cincinnati, railroad (dealers)	15.00 to 15.50
Cincinnati, agricultural (dealers)	13.50 to 14.00
Cleveland, agricultural	15.00 to 15.50
Cleveland, railroad	15.50 to 16.00
Detroit	15.00 to 15.50
Eastern Pennsylvania, railroad	16.50 to 17.00
Pittsburgh, railroad	16.00 to 16.50
St. Louis, agricultural	13.00 to 13.50
St. Louis, railroad	14.00 to 14.50

Miscellaneous Scrap

RAILS FOR ROLLING

5 feet and over

Birmingham	13.00 to 14.00
Boston (dealers)	11.00 to 11.50
Buffalo	15.50 to 16.00
Chicago	15.50 to 16.00
Eastern Pennsylvania	17.00 to 17.50
New York	13.75 to 14.25
Pittsburgh district	18.00 to 18.50
St. Louis	14.00 to 14.50

LOCOMOTIVE TIRES

Chicago, No. 1	16.75 to 17.25
Chicago, cut	16.00 to 16.50
St. Louis, No. 1	15.50 to 16.00

LOW PHOSPHORUS PUNCHINGS

Chicago	15.25 to 15.75
Eastern Pennsylvania	16.50
Pittsburgh	18.00 to 18.50

Scrap

Market Weaker, Prices Lower as Consumers Continue to Buy Almost Nothing

LACK of interest in further supplies and a heavy offering of scrap by railroads and other producers have continued the dull conditions that have prevailed for several weeks. Quotations have sagged 25 to 50 cents in nearly all centers. Small purchases are being made but no tonnages have been placed. The bottom does not appear to have been reached.

Chicago, May 3.—Little change in iron and steel scrap has marked the past week, the downward trend continuing. Lack of demand brings heavy melting steel close to $13, sales at $13.50 the first of the week not being repeated. Dealers now are buying in at $13, delivered Chicago. Railroad scrap is particularly weaker as a result of heavy supplies and no consumer buying. Most grades have been cut 25 to 50 cents and the bottom appears not yet in sight. Consumers are keeping stocks low and in some cases the larger interests here have regulated shipments on contracts.

Boston, May 3.—Iron and steel scrap prices are easier in New England although dealers hold nominally to established levels. Heavy steel has moved moderately, perhaps 1000 tons for the week. The cast grades are unusually quiet. The Boston & Maine railroad opened bids covering 3000 tons and the Boston Elevated railway has disposed of 800 tons, mostly girder rail.

New York, May 3.—With little fresh consuming demand, scrap buying here continues largely on old contracts and with no large tonnage moving. The situation generally is colorless, with prices more or less nominal and easy.

Philadelphia, May 3.—Iron and steel scrap reflects a lower tone. The principal development is the purchase of heavy melting steel at $13.25, delivered Sparrows Point. This reduces the market here to $14 to $15. A number of eastern consumers continue to take in tonnage in excess of their contract commitments and their needs are filled without much new contracting. Blast furnace turnings have been bought at $10.50, a reduction of 50 cents.

Buffalo, May 3.—Some heavy melting steel is being sold to Buffalo melters for delivery this month at $15 to a maximum of not more than $16 for best material. All receipts are being inspected carefully, especially by consumers with new specifications and top price is being paid only for selected scrap.

Pittsburgh, May 3.—Since the sale last week of 8000 to 10,000 tons of heavy melting steel scrap at $15.50 to a mill located on the Ohio river, selling activity here has been limited. Some scrap, possibly a slightly better grade, has been offered to mills in this district at $16. One of these reported to have purchased a tonnage now denies the allegation. Other sales are small, and prices generally have weakened 50 cents to $1 per ton since a week ago.

Cleveland, May 3.—Consumer buying is entirely absent in this market and in the valleys, melters working on reserves and the small tonnages they still have coming on contracts. The latter are being well worked out and little remains to be shipped. Prices are considerably lower and many are nominal in the absence of trading.

Detroit, May 3.—Demand for iron and steel scrap continues limited to small orders and large consumers are showing little interest in current offerings. Dealers are buying cautiously and only for immediate requirements. Prices are unsteady and practically unchanged.

Cincinnati, May 3.—Iron and steel scrap has become weaker with prices 25 to 50 cents per ton lower. Principal factors are milder weather starting small supplies to moving in heavy totals into yards, railroad offerings of large proportions and heavy supplies of scrap otherwise available.

St. Louis, May 3.—Declining tendencies in iron and steel scrap continues unrelieved. Consumers are more disposed to liquidate stocks than to purchase, and the outlook for both prices and demand is anything but roseate. Superimposed on the weak market is a heavy volume of railroad offerings, which has served to emphasize present feeble conditions. Heavy melting steel was cut an additional 25 cents per ton, making the price $11.75 to $12.25.

Birmingham, Ala., May 3.—No change is noted in the iron and steel scrap market here, purchasing being in small lots and quotations continuing low and weak. Heavy melting steel is held at $12.

Sheets

Independent Makers Raise Prices, But Market Is Not Tested—Small Sales Higher

NEW sheet prices have been adopted generally by independent manufacturers, while the leading interest is expected to make advances soon. The minimum levels are: Blue annealed 2.25c, base, Pittsburgh; black, 3.00c; galvanized, 3.85c; and, full finished, 4.25c. Small lots have been placed at the new prices, but the market is not fully tested.

SHEET PRICES, PAGE 1164

Pittsburgh, May 3.—Independent sheet producers have rallied around a higher price standard. Led by Youngstown Sheet & Tube Co. and Wheeling Steel Corp. last Thursday, other independents have fallen into line, and many made their advance of $1 to $3 per ton effective yesterday, including American Rolling Mill Co. American Sheet & Tin Plate Co. has taken no action, but is expected to soon. The new price levels are 4.25c on full finished, 3.85c on galvanized, 2.25c on blue annealed, and 3.00c on black. Bookings have been fairly active and represented almost every line of consumption, particularly building construction. Attractive lots of galvanized corrugated sheets have been booked, as well as the grades used by the metal lath manufacturers. A few lots of blue annealed, involving several hundred tons, have been booked at 2.20c. Operations in some cases have mounted slightly, American Sheet & Tin Plate Co., going up several points.

New York, May 3.—A number of sheetmakers have followed the Youngstown Sheet & Tube Co. and have advanced minimum prices to 2.25c, base, Pittsburgh, for blue annealed, 3.00c for black and 3.85c for galvanized. So far there is not enough demand to afford a real test.

Philadelphia, May 3.—Most sheetmakers have followed the advance announced last week by the Youngstown Sheet & Tube Co. Several have not made their position clear. Mills generally took at the old prices all specifications in sight, so there is no test of the market. Buying did not extend far ahead.

Buffalo, May 3.—Prices of black sheets were advanced to 3.00c, base, Pittsburgh, on April 29 in this district. Quotations on galvanized and other grades of sheets also are up $2 a ton.

Youngstown, O., May 3.—Every independent steel sheet mill in this district has moved its prices upward by $4 to $6 a ton to the general level of 3.00c for black, 4.25c for full-finished, 3.85c for galvanized and 2.25c for blue annealed, following the lead of the Youngstown Sheet & Tube Co. Furthermore, they declared they will demand those prices

from buyers and if they fail to get them they will close down their mills. A fair volume of new business is being taken this week at the new quotation, and 98 out of 127 independent units are operating. One Niles, O., mill which was idle last week resumed Monday with 5 mills. Full-finished mills are booked between two and three weeks ahead. Shipments from all makers are satisfactory and no stocks of any grades of sheets are accumulating on mill floors. Local mills are looking forward with considerable interest as to what will be the price attitude of the American Sheet & Tin Plate Co., and also the important eastern mills which have become rather keen competitors with mills in the Central West, especially for business in Michigan.

Cincinnati, May 3.—Sheet prices have been advanced. One pass, cold-rolled black now are 3.00c, and galvanized are 3.85c. A large manufacturer in the Pittsburgh district quotes 4.25c for automobile sheets; 3.85c for galvanized; 3.00c for black and 2.25c for blue annealed.

Chicago, May 3.—Recent advances in sheet prices in eastern territory have had a stimulating effect on western markets. This is not traceable to any important gain in volume of orders, but is resulting in less resistance on the part of buyers. Whether the stiffening market will cause buyers to anticipate needs to a greater extent than heretofore is a question. Mills are operating at 80 to 85 per cent. No backlogs are being accumulated. April business was 10 to 15 per cent under March, but much improved over last April. Western mills are getting out emergency roofing tonnages to take care of the expected demands from the Mississippi valley areas. The Inland Steel Co. was expected to advance its sheet prices $2 a ton late today or tomorrow.

St. Louis, May 3.—Demand for sheets is quiet. Effects of the floods through the Mississippi valley continue to be felt. Manufacturers of refrigerators are busy, and have placed substantial tonnages for galvanized material. Prices are steady.

Cleveland, May 3.—Hailing the recent price increases as the last straw to save a drowning industry, sheet sellers in this territory are prepared to stand firm on the new levels of 3.00c for black, 2.25c for blue annealed, 3.85c, for galvanized, 4.25c for auto-body, and 4.20c for long ternes. Demand has fallen off in the past week, but sellers expect that the suddenness of the recent increase will cause buyers to protect themselves more thoroughly than previously.

Tin Plate

Specifications Slightly Better—Operations Also Increased

TIN PLATE PRICES, PAGE 1164

Pittsburgh, May 3.—Tin plate specifications are more active, and have increased. American Sheet & Tin Plate Co. went up about 5 per cent, but the general average is 80 to 85. Tin plate manufacturers are not receiving as much business from can-makers for their pea crop this year as in 1925 and 1926. Acreage devoted to this vegetable this year will be greatly curtailed. Growers in Utah are planning to raise only 25 per cent as much as in 1926. One of the largest pea packers in that state has closed. The $5.50 price holds.

Youngstown, O., May 3.—Every independent tin mill unit in this district is operating this week, including mills producing tin mill black plate. Some fair business has come in from the canners for filling-in, and other consumers also have forwarded good specifications. An advance in the price of long terne plates to 4.20c, base sizes, from the former quotation of 4.10c, seems to have served to strengthen the tin plate market to $5.50, Pittsburgh, per base box.

At the recent annual meeting of the National Slag association at Cleveland, all officers were re-elected. They are as follows: President, C. L. McKenzie, president, Duquesne Slag Products Co., Pittsburgh; vice president, C. E. Ireland, vice president, Birmingham Slag Co., Birmingham, Ala.; and secretary-treasurer, H. J. Love, 933 Leader building, Cleveland.

Largest Great Lakes Ore Carrier Launched

The steamer HARRY COULBY of the Interlake Steamship Co., vessel division of Pickands, Mather & Co., Cleveland, was launched at the Lorain, O., yards of the American Shipbuilding Co., April 30. The vessel has a capacity of 13,800 tons of iron ore, largest of all ore carriers on the Great Lakes. It is 630 feet 9 inches overall, with 65-foot beam. The boat was named in honor of a partner in the firm of Pickands, Mather & Co. It is the third large carrier built for the Interlake company since last fall, and the sixth of similar boats built at the Lorain yards in that period.

Pipe

Jobber Buying Continues Spasmodic from Oil Country—Line Pipe Not Active

DEMANDS for spot goods from standard weight pipe jobbers are fair, but oil country buying is light. Line pipe is inactive, but several lines are in prospect. Cast pipe demand is better. Sales in Boston territory totaled 3000 tons. New York district lists 18,000 tons of inquiry. Lock Joint Pipe Co. recently booked about 10,000 tons of work.

PIPE PRICES, PAGE 1164 AND 1208

Pittsburgh, May 3.—Spot buying of pipe by jobbers is holding up fairly well, especially by jobbers of standard full weight merchant pipe. Oil country jobbers are not doing much, over-production in oil curtailing demand, particularly in those sections affected by floods. No oil line pipe business is developing but lapweld mills are well fortified with backlogs of gas line pipe business. The only gas line pending of large proportions is the one from Texas to Denver, which according to a large manufacturer here has not yet been placed. Prices are only fairly firm, some lines being particularly competitive. Operations are maintained at 75 to 80 per cent on the average.

Boston, May 3.—Private sales of cast iron pipe have been heavy, but public awards few. The past week's sales totaled 3000 tons. Prices on small sizes are firm but concessions up to $2 are being made on 24-inch and above. Municipalities in the New England district have not as yet formulated spring programs and consequently buying from those sources is expected to materialize within the next several months.

New York, May 3.—About 17,000 to 18,000 tons of cast pipe is pending for municipalities in this district, but little public buying is noted. The latest large inquiry to come out involves 3100 tons for the local water department, on which bids are to be opened May 5. Prices are unchanged but tend toward easiness on some sizes of cast iron pipe.

Recent contracts for pipe lines booked by the Lock Joint Pipe Co., Ampere, N. J., include one at Birmingham and two at Washington. The Birmingham project involves 2400 tons of bar sheets and wire mesh and the two Washington lines require 7250 tons of bars and mesh.

Chicago, May 3.—Unsettled weather is claimed to be slowing the spring buying movement of cast iron water pipe. An active volume of small orders, 100 tons and less, is reported. Large municipal buying still is deferred. Chicago is expected to add to its recent purchase of 2000 tons by at least double that tonnage. In the absence of buying of heavy tonnages prices are not being given a rigid test, but recent bids have disclosed an irregular market. The range of $35 to $37, base, Birmingham, or $43.20 to $45.20, delivered Chicago, is representative of recent activity.

Birmingham, Ala., May 3.—New lettings are light and production is being maintained on old business. Quotations are steady at $36 to $37 per ton, for 6-inch and over sizes. Be-

fore the end of this quarter much new business is expected.

CONTRACTS PLACED

1732 tons, 2-inch for Los Angeles, Spec. W-773, to Pacific States Cast Iron Pipe Co.
584 tons, improvement to Magnolia street, Burbank, Calif., to Gibbons & Reed.
573 tons, 2-inch, for Los Angeles, Spec. W-773, to American Cast Iron Pipe Co.
270 tons, 2-inch for Los Angeles, Spec. W-773, to Crane Co.
182 tons, 4 and 6-inch class B, Los Angeles, Calif., to United States Cast Iron Pipe & Foundry Co.
108 tons, 6 to 10-inch class B, storm drain, Jefferson street, Los Angeles, to unnamed company.
300 tons, 6 to 12-inch pipe, for Holland, Mich., to Traverse City Iron Co.
600 tons, 16, 20 and 24-inch, Newton, Mass., to Warren Foundry & Machine Co.
150 tons, Beverly, Mass., to United States Cast Iron Pipe & Foundry Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

3700 tons, 6 to 20-inch class B, Long Beach, Calif.; bids in.
3100 tons, chiefly 8-inch pipe, for department of water supply, gas and electricity, New York; bids opened May 5; a lot of 1600 tons is expected to be brought out shortly.
2190 tons, 4 to 20-inch class B or centrifugal, riveted steel, standard or reinforced concrete pipe, unstated California city; bids in May 18.
390 tons, 12-inch, class B, California Water Service Corp., Fresno, Calif.; bids in.
300 tons, 4 to 10-inch pipe, for Birmingham, Mich.
850 tons, 6 to 8-inch pipe, for Royal Oak, Mich.; new bids to be received this week.
200 tons, 6-inch, Providence, R. I.; bids in.
400 tons, 4 to 6-inch cast iron pipe, Liberty, N. Y.; general contractors' bids asked.

Iron Ore

Sales and Specifications Slow—Shipments in April Among Best

IRON ORE PRICES, PAGE 1206

Cleveland, May 3.—While shipments of Lake Superior iron ore have started at a high rate, for April, the market shows indications of dragging. Sales are slow in developing and some consumers having long-term contracts are not issuing specifications as promptly as desired by shippers. One producer booked about 100,000 tons in the week, made up of smaller lots. Producers estimate 500,000 tons is still pending in the open market.

Shipments down the lakes in April totaled 1,560,086 tons, compared with 9664 tons last April, when the season was slow in opening. The record April shipment was 2,120,715 tons in 1925, and the next largest 1,658,411 tons in 1916.

Alloy Demand Spotty

Cleveland, May 3.—Demand for alloy steels in this district continues spotty. Those automotive interests operating on good schedules are continuing heavy purchases, but some manufacturers have been decreasing their commitments. Prices on most of the spot business are at the quoted levels.

Bars

Steady Demand Comes from All Consumers—Deliveries at Chicago Much Deferred

BUYING of steel bars of various grades leads the finished steel market in the West and deliveries are six weeks behind on most business. Prices are firm and maximum figures are being applied on an increasing proportion of inquiries. Pittsburgh mills believe May and June will more than fill the April deficiency in tonnage.

BAR PRICES, PAGE 1164

Chicago, May 3.—Activity in soft steel, cold finished and alloy steel bars is leading the finished steel market. New buying of soft steel bars has been of slightly less volume during the week. On the other hand, specifications against contracts are holding to the rate of shipments. Two elements in the market are bringing cheer to producers. One of these is the spurt in steel buying by farm equipment makers. Second-order buying of several implement makers is ahead of the usual seasonal activity. Also reports that automotive and parts makers are continuing April schedules through May is encouraging, inasmuch as that industry has been taking heavy steel requirements from this district. Tractor demand from the farm areas is unusually heavy. Buyers encounter more difficulty in getting prompt shipment on finished steel specifications. Aside from small tonnages that can be thrown into current schedules, orders cannot be taken for shipment earlier than six weeks. Recent reports from the flood district in the Mississippi valley indicate that the emergency demand will exceed earlier expectations. On the other hand, the floods are tending to depress general business activity.

Finished steel prices are steady at 2.00c to 2.10c, Chicago, with the bulk of heavy tonnage moving at the minimum figure. Mills are quoting 2.10c to the smaller industries, and have been seeking to broaden the application of the 2.10c quotation recently.

Boston, May 3.—The tonnage of steel bars placed during the week showed little change from the previous week. Alloy bar sales improved. Many consumers have not contracted for second quarter and are buying for current needs in the open market. The price range is 1.85c to 1.90c, Pittsburgh.

New York, May 3.—Steel bar demand is good and prices reflect considerable strength. In fact 1.90c, base, Pittsburgh, is being done in the majority of cases and 1.85c figures only on especially attractive tonnages. In some cases large buyers are paying 1.90c. On iron bars the usual price continues 1.90c, base, Pittsburgh, but in connection with certain stocks which are being liquidated 1.80c is being done.

Philadelphia, May 3.—Demand for steel bars as reported by leading makers is somewhat slow but most business continues to move at 1.90c, Pittsburgh, with 1.85c available on attractive lots.

Pittsburgh, May 3.—A slight increase in specifications on merchant steel bars is noted, and all producers are sanguine concerning prospects for May. June is expected to develop greater business, and April's lack will therefore soon be made up. Specifications against 1.90c contracts are promised and probably will materialize before another week. On some small lots, some producers claim to be quoting 2.00c but in most cases 1.90c is being named. Of late this figure has applied on some relatively small tonnages sold to users who ordinarily purchase in larger quantities.

Buffalo, May 3.—Bars are being sold for shipment this quarter at 2.165c. There is practically no third quarter inquiry. Production has reached close to or slightly above 80 per cent of capacity.

Cleveland, May 3.—Orders for bars have been slightly heavier the past few days. The automotive outlook for May is for a month equaling April. The local mill has accumulated a three-week backlog and denies reports of less than 1.90c, Cleveland. For general business outside makers quote 1.90c, Pittsburgh. Tonnage buyers in the Detroit and Toledo districts enjoy a slight lower price.

Machine Tests Cables

The research department of the American Cable Co. recently designed and built a machine for testing cables and cable fastenings, which has been used with great success in the testing laboratories of the American Chain Co. In an article appearing in the April 28 issue of IRON TRADE REVIEW credit for this newly developed machine was given in error to the American Bridge Co. This machine which was illustrated in the issue referred to is a product of the American Cable Co. exclusively, and the American Bridge Co. has been in no way concerned with its development.

Simplified practice recommendation No. 56, recently published by the department of commerce, deals with the simplification of carbon brushes and brush shunts. Copies of the recommendation may be obtained from the superintendent of documents, government printing office, Washington, for 5 cents.

Structural Shapes

New York Carries Bulk of Activity as Other Markets Relapse—Flood Area Replacement Work Expected to Take Tonnage

NEW YORK metropolitan district continues to supply the bulk of current structural shape activity. Slow spring building programs are encountered in such cities as Boston, Pittsburgh, Cleveland, Cincinnati and St. Louis, as far as structural steel requirements are concerned. Awards of specific work during the past week did not include any unusually large tonnages. Small work continues plentiful. Inquiries also include a large number of light tonnage projects. Repairs and replacements to areas damaged by the Mississippi floods are expected to take considerable tonnage.

Plain material prices in the East are fairly stable at 1.75c to 1.85c, Pittsburgh, with 1.90c holding in other districts. Chicago is 2.00c to 2.10c.

STRUCTURAL SHAPE PRICES, PAGE 1164

New York, May 3.—Structural demand is holding up fairly well, with more than 15,000 tons involved in the larger orders reported. In some quarters it is believed business in the eastern district in April was heavier than in March. Shape prices continue about 1.75c to 1.85c, Pittsburgh, on the general run of large jobs, being kept in restraint by continued low prices on fabricated material. Commenting on the current low levels of fabricated material, one large trade interest recently declared that the fabricating trade has not recognized nor adjusted itself to the new buying conditions, where contracts are not made ahead, but generally are made for immediate work.

Boston, May 3.—Structural awards dropped to a low level. Buying by jobbers improved and inquiry is encouraging. Plain shapes range from 1.75c to 1.85c, Pittsburgh.

Philadelphia, May 3.—Structural shape bookings have improved and eastern mills are operating full or close to capacity. Prices show an easier trend on attractive work and low figures have been quoted in some instances. The general level continues 1.70c to 1.85c, Pittsburgh, with 1.90c now being quoted on occasional small lots.

Pittsburgh, May 3.—Structural shape bookings locally have been taken at decidedly low figures. A laundry building involving about 40 tons went at $55 per ton, fabricated-and-delivered-to-job-by-truck basis. Another involved about 100 tons, and this is said to have brought between $55 and $60 per ton. Action is deferred on the larger jobs, and not much in the way of new inquiry is appearing. Local shops are going far afield in an effort to develop new business but with indifferent success. Plain material remains firm at 1.90c, Pittsburgh. Transmission tower orders for Indiana have been placed, but details are withheld until next week.

Chicago, May 3.—Structural steel business continues at nearly the same rate as a year ago. Fresh inquiries are appearing consistently. Reports from the middle western flood areas indicate that considerable steel will be required for bridge replacement. One report from St. Louis cites the loss of a 5-span bridge and damage to a large amount of other bridgework. Mills deliver plain material in two to three weeks. The price is steady at 2.00c to 2.10c, Chicago.

Cleveland, May 3.—Despite the fact that several pending projects here involve more than 5000 tons of structural steel, awards continue to involve small lots of under 50 to 75 tons each. Plain material specifying is in good quantity, but new inquiries are not numerous. Plain material prices hold steady at 2.09c, Cleveland, or 1.90c, Pittsburgh.

Awards Compared

	Tons
Awards this week	**23,002**
Awards last week	**25,782**
Awards two weeks ago	**53,818**
Awards this week in 1926	**32,162**
Average weekly awards, April	**36,011**
Average weekly awards, 1927	**37,109**
Total awards to date, 1926	**481,956**
Total awards to date, 1927	**653,858**

CONTRACTS PLACED

7875 tons, involved in the following six New York awards:
- Garage, Tenth avenue, between Thirty-third and Thirty-fourth street;
- Theater, Jamaica avenue and Springfield boulevard, Queens Village, Long Island;
- Theater, 574 Flatbush avenue, Brooklyn, all to George A. Just Co.
- 16-story apartment hotel, 148 East Thirty-ninth street;
- 18-story loft, Thirty-fifth street and Ninth avenue, all to Hay Foundry & Iron Works.
- Boiler framing for New York Steam Corp., Thirty-fifth street and East River, to Post & McCord.

2600 tons, Central Savings bank, Broadway and Seventy-third street, New York, to McClintic-Marshall Co., previously stated as going to another fabricator.

1800 tons, municipal subway, Rochester, N. Y., through I. M. Ludington Co., general contractor, to F. L. Hughes Co.

1400 tons, building for *Rochester Times Union* Rochester, N. Y., to Genesee Bridge Co.

1400 tons, bridgework for Chesapeake & Ohio railroad, to Mt. Vernon Bridge Works.

1250 tons, Meier & Frank warehouse, Portland, Oreg., through Waale & Shattuck Construction Co., to Poole & McGonigle.

1150 tons, theater hotel project, Portland, Oreg., through L. A. Hoffman, to Poole & McGonigle.

900 tons, 600 underframes, Pacific Fruit Express Co., Seattle, to Pacific Car & Foundry Co.

700 tons, new plant, Mississippi Valley Structural Steel Co. at Melrose Park, Ill., to be fabricated by this company.

700 tons, hospital, Bayonne, N. J., to Hinkle Steel Construction Co.

600 tons, office building, Sixty-first street and Broadway, New York, awarded unstated fabricator.

500 tons, bridges for Wabash railroad at Oakwood, Mich., to American Bridge Co.

500 tons, building for Indianapolis Power & Light Co., Indianapolis, to Robert Berner Structural Steel Co.

425 tons, factory building, Philadelphia, to American Bridge Co.

400 tons, Montefoitore hospital, Bronx, New York, to A. E. Norton Inc.

390 tons, apartment, 246 West Fiftieth street, New York, to Dreier Iron Works.

350 tons, apartment Wilmington, Del., to McClintic-Marshall Co.

300 tons, power house, New Milford, Conn., to Berlin Construction Co.

275 tons, miscellaneous bridge repairs, various Chicago railroads, to Vierling Steel Works.

250 tons, building for Colonial Marble Co., Rutland, Vt., to Eastern Bridge & Structural Co.

230 tons, Nazareth Cement Co. building, Nazareth, Pa., to Bethlehem Fabricators Inc.

200 tons, F. W. Woolworth Co. building, New Haven, Conn., to Levering & Garrigues Co.

200 tons, column cores, building, 211 West Sixty-first street, New York, to A. E. Norton Inc.

175 tons, hospital, Roxbrough, Pa., to Bethlehem Fabricators Inc.

160 tons, Grant high school, Portland, Oreg., to Pacific Iron Works.

160 tons, bridge for the Bangor & Aroostook railroad at Derby, Me., to the Phoenix Bridge Co.

142 tons, plant addition, National Biscuit Co., Cambridge, Mass., to A. O. Smith.

140 tons, building, Nostrand avenue and Hawthorne street, Brooklyn, N. Y., to Alpha Iron Works.

125 tons, Temple Beth Israel, Portland, Oreg., to Pacific Iron Works.

105 tons, breaker-building additions, Koppers Construction Co., Chicago, to Gage Structural Steel Co.

100 tons, Errol Heights school, Portland, Oreg., to Pacific Iron Works.

100 tons, Dupont warehouse, Kearny Point, N. J., to Belmont Iron Works.

Unstated tonnage, theater, Yonkers, N. Y., to Easton Structural Steel Co.

Unstated tonnage, apartment, 192-4 East Seventy-fifth street, New York, to Easton Structural Steel Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

1900 tons, Prospect avenue bridge, Union Terminals project, Cleveland.

1600 tons, building for Standard Oil Co. of New York, at Albany, N. Y., general contract awarded to E. Richard Davis, New York; action in the award of steel is expected at once.

1300 tons, bridges for Erie railroad; bids asked.

1100 tons, laboratory, Yale university, New Haven, Conn., pending; this project previously referred to as involving 800 tons.

925 tons, highway bridges for Minnesota; bids asked.

800 tons, boxing arena, San Francisco; bids to be taken soon.

700 tons, 12-story apartment, Ninety-third street and Lexington avenue, New York.

700 tons, school building, Lansing, Mich.; bids being compiled.
500 tons, addition to Massachusetts General hospital, Boston; preliminary plans out.
500 tons, Y. M. C. A. for the Reading railroad, Reading, Pa.; bids asked.
500 tons, addition to Mississippi River Power Co. plant at Keokuk, Iowa; bids asked.
500 tons, extension to open-hearth building, Colorado Fuel & Iron Co., Pueblo, Colo.
500 tons, garage for Dinkelberg Syndicate, West Lake street, Chicago; plans prepared.
400 tons, girder spans, Oregon-Washington Railroad & Navigation Co., Portland, Oreg.
350 tons, bar joists, administration building for Pittsburgh board of education; bids close May 17.
350 tons, school at New Castle, Pa.; bids being considered.
300 tons, Y. M. C. A., Jamestown, N. Y.
300 tons, Mercy hospital, Springfield, Mass.; J. T. Keating Co., Boston, general contractor. William Donohue, Springfield, architect.
260 tons, plant additions, Nieman Table Co., Chicago; steel bids in.
200 tons, 5-story building for the New York Association for the Blind, 603-5 First avenue, New York; bids asked.
200 tons, rebuilding of ferry ships at Weehawken, N. J., for New York Central railroad; bids asked.
200 to 2000 tons, one to 10 airplane hangars at Dayton, O.; bids being compiled.
200 tons, Women's hall, Cornell university, Ithaca, N. Y.
175 tons, miscellaneous steel work, Sixty-third street yard, Chicago, Rock Island & Pacific railroad, Chicago.
164 tons, bridge for San Gabriel Canyon railroad, Los Angeles; Virginia Bridge & Iron Co. low bidder.
150 tons, office, Jersey City, N. J.
120 tons, bridge for Southern Pacific Co., Napa, Calif.; bids in soon.
120 tons, building for Malta Temple association, Northside, Pittsburgh; general contract awarded Rose & Fisher, Pittsburgh.
100 tons, Fox theater, Newark, N. J.; bids asked.
100 tons, bridge for the Chesapeake & Ohio railroad; pending.
100 tons, Y. M. C. A. at Nyack, N. Y.; bids asked.
100 tons, apartment house for Herman Kamin, Pittsburgh; general contract awarded Levinson Bros.
100 tons, incinerator building, Providence, R. I.; bids being taken.
100 tons, new building, New England bakery, Pawtucket, R. I.; bids being taken.
Tonnage unstated, 10-story building, Ben Trap Corp., Elizabeth, N. J.
Unstated tonnage, 30-story building for La Salle Street club, Wells street and Wacker drive, Chicago; plans prepared.
Unstated tonnage, administration building for Chicago board of education, Chicago; tentative plans prepared.

Steel Sash Varieties Cut

Washington, May 3.—A 93 per cent reduction in varieties of solid section steel windows, effective Sept. 1, has been effected by adoption of a simplified practice recommended by manufacturers and users, working with national committee on metals utilization. Varieties are reduced from 42,814 to 3010, a clearer and more concise method of classifying and indexing has been adopted and a revised table of nomenclature written. A standing committee of the industry will consider periodic revisions.

Canada Makes More Autos

Washington, May 3.—March production of automobiles in Canada, as reported to the department of commerce by the Dominion bureau of statistics, was: Passenger cars, 19,089, trucks, 3534; as compared with February's 14,826 passenger cars and 3829 trucks, and March, 1926, with 17,989 passenger cars and 4385 trucks.

Concrete Bars

Small Orders Numerous But Large Awards Lacking—Road Inquiries Increase

CONCRETE reinforcing bar demand is showing but moderate improvement in the season when heavy buying is customary. Roadbuilding operations are taking increased quantities, but building construction has failed to open up in many districts. Most sales are in carload or less quantities. Welded mesh is in heavier demand for New York state highway work. Prices generally steady

REINFORCING BAR PRICES, PAGE 1164

Chicago, May 3.—Reinforcing bar awards in the past week have been comparatively light, most jobs calling for rail steel. The number of projects pending is large at this time and should constitute a heavy tonnage within the next two weeks. Apartment construction continues strong, and rail steel for state highway reinforcement remains active, with some 700 tons already placed. Billet steel is firm at 2.30c to 2.60c, Chicago, for reinforcing, while rail steel brings 1.90c to 2.00c.

Boston, May 3.—April closed with concrete bar sales at Boston below normal and about 10 per cent below March. The mill price holds moderately firm at 1.80c, Pittsburgh. The Boston warehouse price ranges from 2.80c to 2.90c.

Philadelphia, May 3.—Lower prices have developed here on concrete bar business. The 2.00c, Pittsburgh, price on mill shipments practically has disappeared excepting on small tonnages. The ruling price on large lots now is 1.90c, and this was cut in one instance in the past week on some 1.90c business, warehouse service being given.

Pittsburgh, May 3.—Outside of a few 15 to 40-ton jobs, concrete bar lettings are few. The mill price on new billet bars stands unchanged at 1.90c, but competition is exceedingly keen on every job that comes up. Action still is deferred on 1600 tons for the Joseph Horne Co. warehouse.

Buffalo, May 3.—Reinforcing bar makers have been booking many small orders but big tonnage inquiry is lacking. Recent sales include two lots aggregating 400 tons for schools. Contracts will be placed soon for 500 tons of welded mesh for western New York road projects, while more than 1000 tons of additional material will be purchased for roads in other parts of the state. Mill shipment price of reinforcing bars is 2.165c, Buffalo, while lots shipped from warehouse stocks are quoted at 2.65c to 2.75c.

Cleveland, May 3.—Concrete reinforcing bar awards the past week totaled approximately 500 tons. Despite pending business of more than 5000 tons, buyers are slow in bringing requirements to a closing point. Small lot sales continue numerous, but inquiries have decreased. New billet bars continue 2.09c, Cleveland. Rail steel is steady at 1.70c to 1.80c, mill. Bars from stocks of jobbers and mills are being quoted on a wide range, prices varying from under 2.50c to 3.00c, Cleveland.

Awards Compared

	Tons
Awards this week	**3,565**
Awards last week	**5,905**
Awards two weeks ago	**2,820**
Awards this week in 1926	**4,671**
Average weekly awards, April	**4,770**
Average weekly awards, 1927	**4,892**
Total awards to date, 1926	**98,114**
Total awards to date, 1927	**86,836**

CONTRACTS PLACED

490 tons, filtration plant, Allentown, Pa., to Jones & Laughlin Steel Corp.
360 tons, Home for Incurables, Philadelphia, to Kalman Steel Co.
260 tons, St. Joseph's college building, Philadelphia, to Concrete Steel Co.
250 tons, chemistry building, Ohio State university, Columbus, O., to Bourne-Fuller Co.
250 tons, school No. 77, Buffalo, to Kalman Steel Co.
250 tons, additional rail steel for highway reinforcement, Illinois state highway commission, to Kalman Steel Co.
230 tons, subway construction, Rochester, N. Y., to Truscon Steel Co.
200 tons, rail steel, retail building for Sears, Roebuck & Co., at Milwaukee, to Calumet Steel Co.
200 tons, Meier & Frank warehouse, Portland, Oreg., to Mercer Steel Co.
180 tons, rail steel, garage, G. A. Johnson & Son, 1335 North Clark street, Chicago, to Truscon Steel Co.
140 tons, Winchell school, Fresno, Calif., to Frederick Steel Co.
140 tons, school No. 28 addition, Buffalo, to Buffalo Steel Co.
115 tons, swimming pool, Forest Hill park, Cleveland, to Bourne-Fuller Co.
100 tons, rail steel, Knights of Pythias temple, Chicago, to Kalman Steel Co.
100 tons, rail steel, additional highway reinforcement, Illinois state highway commission, to Truscon Steel Co.
100 tons, Spec. P.-778, Los Angeles, to California Hardware Co.
100 tons, women's dormitory, Augustana college, Rock Island, Ill., to Concrete Steel Co.
100 tons, school at Jamestown, N. Y., to Truscon Steel Co.

CONTRACTS PENDING

New Inquiry and Developments on Projects Previously Reported

1450 tons, office building, Pasadena, Calif.; bids being received.
670 tons, loft building, Pico street, Los Angeles; bids being taken.
550 tons, garage on Spring street, Los Angeles; bids pending.
500 tons, office building, Broadway, near

Tenth street, Los Angeles; bids being taken.
390 tons, architects' building, Los Angeles; bids to be taken soon.
300 tons, elevator for port of Seattle; bids being asked.
250 tons, Y. W. C. A. building, Boston; bids in.
200 tons, warehouse, William Filene's Sons Co., Cambridge, Mass.; bids in.
140 tons, welded mesh, Youngstown-Olcott highway, New York; C. B. Whitemore Co., Lockport, N. Y., low bidder.
130 tons, welded mesh, Livonia-Ontario highway, New York; Rochester Concrete Construction Co., Rochester, N. Y., low bidder.
125 tons, welded mesh, Holland-Yorkshire highway, New York; J. F. Morgan Co., Olean, N. Y., low bidder.
115 tons, school at Binghamton, N. Y.
115 tons, post office at Syracuse, N. Y.
100 tons, terminals for Puget Sound Power & Light Co., Seattle.
100 tons, garage, Harrison street, Oakland, Calif.; bids in.
100 tons, welded mesh, Holland-Glenwood highway, New York; Cold Spring Construction Co., Buffalo, low bidder.

Refractories

New Demand Is Light—Prices Are Firm

REFRACTORIES PRICES, PAGE 1207

Pittsburgh, May 3.—Buying of refractories is confined to visible needs. Low inventories are the rule, although in one or two instances shed stocks among users were allowed to dwindle past the danger point and have been brought up to normal the past week or 10 days. Nearly every order placed is for rush shipment. The general average of production is 68 per cent. Some brick producers are well committed until July 1 at the low figures prevailing before the last $3 advance, and hence are able only to sell sparingly at the present higher prices which appear firmly held.

New Hudson Span To Be Largest of Kind

New York, May 3.—The proposed Hudson river bridge between New York City and Fort Lee, N. J., upon completion will be the largest expansion bridge in the world. The main span will be 3500 feet long and the length of the bridge, overall, including the approaches, will be 9000 feet. The height of the towers above water will be 600 feet.

Total maximum cable pull, under the eyebar design, will be 330,000,000 pounds and the load on the towers 280,000,000 pounds. Total maximum cable pull, under the wire design, will be 270,000,000 pounds and the load on the towers 230,000,000 pounds. Weight of the entire structure will be 2,000,000,000 pounds.

The first contract, the foundation and tower base contract for the New Jersey tower, has just been awarded to Silas B. Wilson, New York, through the Port of New York Authority. Other contracts will be brought out as fast as possible, with a view to completing the structure in 1932.

The amount of steel involved probably will not be definitely known for two or three months. Much depends upon the type of cable design selected.

Rails, Cars

Eastern Road Places 10,000 Tons of Rails at Chicago—Illinois Central Inquiry Definite

ACTIVITY in the railroad market in the past week was featured by placing of 10,000 tons of rails by an eastern road with a Chicago mill, and the definite inquiry by Illinois Central for 4500 cars. Its previous inquiry had been postponed due to floods in the Mississippi valley. From 4000 to 6000 tons of track materials has been ordered for flood district work.

RAILROAD TRACK MATERIAL PRICES, PAGE 1164

Chicago, May 3.—An eastern railroad has placed 10,000 tons of standard steel rails with Chicago district mills. About 2000 to 3000 tons of angle bars, and a similar tonnage of tie plates have been booked by mills for quick shipment to the flood districts. About 2000 kegs of track bolts and a similar quantity of spikes also have been ordered.

Rail mill operations are expected to be curtailed shortly to some extent. At least two roads are expected to come into the market for their primary rail tonnages in the present season, one of which will take 20,000 to 30,000 tons.

Outstanding in car equipment business is the Illinois Central's definite inquiry for 4500 cars, including 2000 box, 1000 hoppers, 1000 general service cars, 500 flat cars, and 16 mail, express and baggage cars. Fruit Growers Express line is inquiring for 651 underframes for refrigerator cars.

Boston, May 3.—New England railroads have about completed their rail buying for 1927. Two street railway systems have bought spikes and bolts. United railways, Providence, R. I., has not closed on its inquiry for 2000 tons of rails.

New York, May 3.—Notwithstanding the substantial number of cars for which inquiries have come out in this district within the past month, little is noted in the way of buying. New inquiry is slack. Locomotive demand also is featureless, although several heavy lists are pending from a week ago.

Pittsburgh, May 3.—Orders for light rails continue to drift in from operating coal mines. The price for the billet-rolled product remains firm at $36. Practically no buying ahead is encountered, hence individual orders remain small.

Makers of track fastenings still are working on business booked earlier in the year. The trade is expecting a better selling period before the usual summer lull sets in. Prices are firm with 2.80c continuing to apply on spikes and 2.35c on tie plates.

CAR ORDERS PLACED

Baltimore & Ohio, four gasoline-electric rail motor cars, to the J. C. Brill Co.
Guantanamo Sugar Co., 30 box cars and two air dump cars, to Magor Car Corp.
Lehigh Valley, one gasoline-electric rail motor car, to the Electro-Motor Co.
St. Louis-Southwestern, 50 underframes, instead of 30 previously reported, to Virginia Bridge & Iron Co.

LOCOMOTIVE ORDERS PLACED

Ferrocarrill de Antioquia, Colombia, S. A., two locomotives, to Baldwin Locomotive Works.
Monongahela, six locomotives, to Baldwin Locomotive Works.

CAR ORDERS PENDING

New Inquiry and Developments on Projects Previously Reported

American Sugar Refining Co., 125 cars; bids asked.
Chicago & Illinois Midland, six passenger coaches; bids asked.
Fruit Growers Express, inquiring for 651 underframes for refrigerator cars.
Georgian Manganese Co. Ltd., Tchiauturi, Russia, ore cars; prices being asked.
Illinois Central, 4500 miscellaneous freight and baggage cars, including 2000 40-ton box cars; 700 50-ton steel hoppers; 300 70-ton steel hoppers; 1000 50-ton general service cars; 500 50-ton flat cars, and 16 mail, express and baggage cars; inquiry renewed and bids to be in May 14.
Sloss-Sheffield Steel & Iron Co., 30 quadruple hopper cars; bids asked.

LOCOMOTIVE ORDERS PENDING

American Railroad of Porto Rico, two narrow gage locomotives; bids asked.
Illinois Central, inquiring for 15 locomotives.
Mitsui & Co., New York, two locomotives for the Canton-Hankow railroad; bids asked.
New York Central, five locomotives, bids asked. These are in addition to previously noted inquiry for 66 locomotives and six locomotive tenders.

Colorado Net Higher

Colorado Fuel & Iron Co., Denver, reports net earnings for the quarter ended March 31 of $1,619,348, after taxes, interest, depreciation and other charges. This compares with $954,248 earned in the corresponding period of 1926. Sales for the quarter were $11,642,979 against $10,363,570 in the first quarter of 1926. The company charged off for depreciation and exhaustion of minerals the sum of $568,587 compared with $534,426 one year before.

Reports for Quarter

Earnings of the Wheeling Steel Corp., Wheeling, W. Va., were $992,251 after charges and before dividends in the first quarter of the year. This was a decline from the earnings of $1,179,614 reported for the corresponding quarter of 1926. The profit from operations after deducting $1,282,436 for repairs was $2,207,070. Provision for depreciation for the quarter is set at $914,894.

Wire

Better Demand Shows Opening of Outdoor Season—Prices Firmer and Shipments Increase

IN SPITE of flood conditions reducing demand from the South and Southwest, buying of wire, nails and wire products keeps up well and conditions are firmer. Some shading and waiving of extras prevails here and there. Jobbers are turning their stocks rapidly and ordering frequently. Production is at the rate prevailing for several weeks.

WIRE PRICES, PAGE 1164

Chicago, May 3.—The iron and steel wire market shows increasing sales. Flood conditions somewhat modified the expected rate of improvement, but jobbers and retailers in other territories bought heavily. Demand for wire nails also is large, while fencing manufacturers have been doing considerable to keep the wire mill operating rate of approximately 65 per cent going strongly. Specifications have been coming in substantially. The price situation continues weak, on the basis of 2.45c, Chicago, on plain and manufacturing wire to jobbers, and $2.55 per 100-pound keg for wire nails.

Worcester, Mass., May 3.—Jobbers are buying nails, staples and fencing for stock. Wire fabricators are less active. Production of wire at local mills holds close to 60 per cent. The base price is 2.55c, Worcester.

New York, May 3.—Steel wire and wire products show a firmer tone. The $2.50, base, Pittsburgh, price on nails seems to have disappeared, although in some instances where $2.55 is being quoted, certain extras are being waived. On the whole the nail market is firmer. On wire 2.40c, base, Pittsburgh, appears to prevail without exception.

Pittsburgh, May 3.—Straight carload orders for nails intersperse a fairly large number of mixed carload orders for wire products. Apparently jobbers are rapidly turning over their stocks, necessitating replenishment, and one or two have placed orders as soon as they received shipping notices that their first cars were under way. Makers at 50 to 60 per cent capacity keep pace with demand. Base prices are observed here by all makers, 2.40c on plain wire and $2.55 on wire nails.

Bolts, Nuts, Rivets

Buying Light but Prices Hold Firmly at Regular Discount

NUT AND BOLT PRICES, PAGE 1164

Pittsburgh, May 3.—Slow demand for nuts, bolts and rivets by the automotive industry, with almost a cessation of buying by oil well machinery interests caused makers of these products to fall back on diversified lines of consumption. The aggregate tonnage is not sufficient to sustain better than 60 to 65 per cent operation. Backlogs, where they exist, are heavier in rivets than in nuts and bolts. Since railroad and structural shops are not ordering many rivets and other buyers are taking only small lots, the weekly aggregate is small. The 70 per cent discount is generally named on nuts and bolts, and one or two rivet makers claim that 2.75c applies on all rivet business they are entering.

Chicago, May 3.—Bolt and nut production remains between 60 and 70 per cent, with specifications steady. Manufacturers under the new lists and extras are getting away from taking small orders in competition with jobbers. The latter are taking good tonnages for the season, despite dropping off of southern business. Manufacturing rivets are in satisfactory demand, despite passing of the implement manufacturing buying period.

Cleveland, May 3.—A slight falling off is reported in new business by bolt, nut and rivet manufacturers. The decline is fairly general among various classes of consumers. Operations average about 70 per cent.

Strip Steel

Orders in Hand Better than for April With Prices Holding

STRIP PRICES, PAGE 1164

Pittsburgh, May 3.—Commitments among strip steel manufacturers for May and June are heavier than for April, and the trade is much encouraged. Diversified business is increasing almost daily and automotive demand, already showing betterment, promises much improvement for the remainder of the month. Prices have become more stabilized. While some hot strip makers follow the plan of quoting the per-pound price on 12 to 14-inch hot strips in the various gages, as outlined by Cleveland manufacturers in last week's issue, some do not do this but base their prices on competition as encountered from blue annealed sheet and plate mills. The 2.10c base price is holding well on 6 to 12-inch wide strips. Better automotive demand is reflected in increased buying of hoop and band sizes, the base on which up to 6 inches wide, namely 2.30c, is holding firm. On cold strips, 3.00c to 3.25c is quoted, according to the size of the order. The strip industry here is on a 70 to 75 per cent operating basis.

Chicago, May 3.—Buying of hot rolled strip is quiet, but specifications continue steady. Quotations are 2.40c to 2.60c for narrower widths, and 2.30c to 2.50c for wider. Cold rolled is in good demand. The price is 3.30c to 3.55c, delivered Chicago.

Cleveland, May 3.—No appreciable amount of business has appeared in the market as yet on the heavier and wider gages of hot rolled strip steel to test the quotations recently adopted. Many companies buying the heavier and wider sizes are booked through May or May and June. Narrow width bookings continue in good quantity. Automotive parts makers in this territory are taking good quantities of hot strip. Detroit demand continues in fair amount. Books have not been opened as yet for third quarter bookings. Cold finished strip prices are steady at 3.00c, the bulk of current sales going at that figure.

Cold Finished Steel

Some Large Tonnages Bought but Most Orders Are Small Lots

COLD FINISHED PRICES, PAGE 1164

Pittsburgh, May 3.—Numerous orders for cold finished steel bars involve 10,000 to 30,000 pounds of a size. Occasionally carloads are bought by various consuming lines made up of different sizes, but piecemeal buying is practically the universal plan followed. This is accompanied by unusual requests for delivery service, with which it is sometimes practically impossible to comply, but in the main customers are kept satisfied. Automotive demand still drags, although some favorable developments are expected in May. Operations do not average more than 70 or 75 per cent, last week's estimate of 80 per cent being too optimistic. The 2.40c price is generally quoted.

Cantley Leaves Board

New York, May 3.—At the annual meeting of directors of the American Iron and Steel institute yesterday all outgoing directors were re-elected except Col. Thomas Cantley, Nova Scotia Steel & Coal Co. Ltd., New Glasgow, N. S., who recently resigned. Those re-elected include James A. Burden, James A. Campbell, Thomas K. Glenn, Eugene G. Grace, Samuel E. Hackett, Severn P. Ker and Jesse F. Welborn. No successor to Colonel Cantley was elected.

Artificial graphite finds wide application for electrodes of electric furnaces, for anodes of electrolytic cells, for the making of molds for casting metals and glass, for electrical heating elements, for electrical contacts and arcing tips.

Nonferrous Metals

Activity Is Restricted and Prices Are Easy —Copper and Zinc Hold Fairly Well But Lead Drops Sharply—Tin Fluctuates

Prices of the Week, Cents a Pound

	Copper Electro delivered	Copper Lake delivered	Copper Casting refinery	Straits Tin New York Spot	Straits Tin July	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
April 27	13.00	13.12½	12.75	67.25	66.25	6.90	6.60	6.12½	25.62½	14.37½	35.00
April 28	13.00	13.12½	12.75	66.87½	65.75	6.87½	6.52½	6.12½	25.62½	14.00	35.00
April 29	13.00	13.12½	12.75	66.12½	64.30	6.85	6.50	6.10	25.62½	13.12½	35.00
May 2	13.00	13.12½	12.75	67.00	64.87½	6.75	6.45	6.10	25.62½	13.00	35.00
May 3	13.00	13.12½	12.75	66.75	64.75	6.75	6.42½	6.12½	25.62½	13.00	35.00

NEW YORK, May 3.—Activity in the nonferrous metal market continues light and prices are weak. In copper there has been little change in quotations but lead has gone down rapidly while tin has fluctuated as usual. Aluminum and nickel are steady and zinc has shown some resistance to the easiness in the market.

Copper—Producers have held well at 13.00c, Connecticut, ⅛ to ¼-cent more in the Midwest. Little new buying has been done the past week but shipments have been of good size. Some producers, however, report domestic shipments are a little spotty. Consumers have shown little interest and producers have avoided pushing the market. There are some reports of small lots offered at shaded prices in the outside market.

Tin—April statistics are strong, showing world visible supplies cut 1592 tons to the lowest since last summer, at 13,849 tons. Seldom has the figure been much lower. Small shipments were made from the Straits and from the Dutch East Indies. There is no news that output has been cut and it is well known demand here has been a little light. Domestic deliveries last month were 6720 tons, slightly over last year's monthly average but not heavy for this season. Stocks and landing at 1704 tons were practically unchanged. Buying of tin this week has been light. However, small stocks help to make nearby positions relatively firm though the market lately has been slipping.

Zinc—Buying has been small, both by galvanizers and brass mills. The Joplin ore market continues to weaken with stocks piling up on account of small purchases by smelters. With ore at $40 a ton, the smelting margin on a ton of ore is $21, so that there is little profit in the market for either miners or smelters.

Lead—The heavy metal now is quoted at the lowest level since the autumn of 1923 and is about ½-cent below the average of the past ten years. Small demand and continued heavy production are the main reasons for the easiness in the market. Export as well as domestic interest is light.

Aluminum—Little change has developed in this market of late. Prices are fairly stable and a fair volume of business is being booked with shipments maintained at a good rate.

Coke By-Products

Demand for Toluol Expands as Production Contracts—Prices Firmer

New York, May 3.—Toluol is scarcer. Demand from paint and lacquer industry has been heavy and production at coke ovens is decreasing. While toluol is still available at 35 cents, works, in tank car lots, and 40 cents in drums, higher prices are reported. Firmness is noted in both pure and 90 per cent benzol, although demand is less urgent. Both products are 24 cents, works, in tank car lots, and 29 cents in drums. Solvent naptha is unchanged. Sulphate of ammonia is easy at $2.40 to $2.45, delivered, for shipment to the North, and $2.45 to $2.50 in the South. Export demand is slack. Naphthalene is unchanged.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	18.12½
Copper, hot rolled	21.75
Lead full sheets (cut ¼c more)	10.50 to 10.75
Zinc, (100-pound base)	9.75
Aluminum, bright flat, up to 10 gage	35.50
SEAMLESS TUBES	
High brass	23.00
Copper	23.75
RODS	
High brass (round ⅝ to 2½-inch)	15.87½
Naval brass	15.62½
WIRE	
Copper, small lots	14.87½
High brass	16.62½

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.00
Chicago	9.25 to 9.50
Cleveland	8.75 to 9.00
HEAVY YELLOW BRASS	
Chicago	6.75 to 7.00
Cleveland	7.00 to 7.25
ZINC	
New York	3.75 to 4.00
Cleveland	3.75
HEAVY COPPER AND WIRE	
New York	10.75
Boston	10.50 to 11.00
Chicago	10.25 to 10.50
Cleveland	10.00 to 10.25
RED BRASS BORINGS	
New York	8.00
YELLOW BRASS TUBING	
Cleveland	7.00 to 7.25
LIGHT COPPER	
New York	9.25
Chicago	9.25 to 9.50
Cleveland	8.75 to 9.00
LIGHT BRASS	
Boston	5.25 to 5.75
Chicago	6.00 to 6.25
Cleveland	6.25 to 6.50
ALUMINUM	
Clippings, Cleveland	18.00
Borings, Cleveland	10.00 to 10.50
Cast, Cleveland	13.50
Cast, Boston	14.00 to 14.50

Secondary Metals

Remelt aluminum No. 12	20.50
Brass ingot, 85-5-5-5	11.87½ to 12.00

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots	Spot	Contracts
Pure benzol	$0.24	
90 per cent benzol	0.24	
Toluol	0.35	
Solvent naptha	0.35	(nominal)
Commercial xylol	0.36	(nominal)
Phenol	0.22	0.22
Per Pound at Producers' Plants		
Naphthalene flakes	0.05½ to 0.06½	
Naphthalene balls	0.06½ to 0.07½	
Per 100 Pounds Delivered		
Sulphate of ammonia	$2.45	

52-Ton Girder Is Set in Place at Chicago

The last of seven large girders, said to be the largest ever used in a Chicago office building, was delivered recently and set in place in the structural work for the State Bank of Chicago building. The girder weighs 52 tons and, due to the hazard in handling, was unloaded and handled at night. The 12,000 tons of steel for this building was fabricated by the American Bridge Co.

Ford to Convert 5 Ships

The Ford Motor Co., Detroit, will convert into barges five lake-type ships which it purchased from the shipping board for scrapping. Under the terms of purchase, the company must pay the board $10,000 for each ship it converts instead of scraps. This sum is in addition to the $8530 base price for the ships. It is said the Ford company will spend $125,000 per ship in the conversion, not including the original cost.

Warehouse

April Sales Totals Disappointing to Many Jobbers—Coal Demand Off at Pittsburgh—Floods Require Repair Materials

DESPITE increasing demands from the building trades, April sales totals in many cases fell behind March and were disappointing to jobbers. Coal mine operators are less active in the Pittsburgh district. Mississippi floods are hampering demand from some regular sources, but repair materials for railroads are in better demand.

Upward tendency in sheets at the mills has not yet resulted in any advance in the New York metropolitan warehouse market, although it has stiffened the tone of the market. Quotations on other products also are unchanged. While April was less active than March it was brisk.

Buffalo iron and steel warehouses report good tonnages of all materials moving. April business was the best of the year. Demand has been especially good for building materials. The new prices are being maintained.

Pittsburgh jobbers note a decided falling off in buying by coal mine operators and owners, and one supply house is cutting its office force 30 per cent. Purchases of materials needed in small construction work continue fairly heavy. Some buyers of sheets are anticipating their needs better and movement of galvanized corrugated is heavier than in many weeks. Some fair-sized sales of floor plates recently were made. Prices are firm.

Flood conditions through the Mississippi valley continue the principal factor affecting distribution from St. Louis warehouses. Certain industries have suspended operations temporarily, and others are on part time schedules, and will be until the waters recede. There has been a considerable volume of emergency purchasing by railroads and other companies for repair work incident to flood damage. April business as a whole was disappointing, with the movement of building materials particularly slow.

Demand for iron and steel warehouse products at Detroit shows little improvement. While individual requirements are showing some increase, single orders continue for small amounts.

Standard iron and steel warehouse products in the Chicago market

(*Concluded on Page* 1179)

Quotations in Cents Per Pound at Leading Market Centers

STEEL BARS

Buffalo	2.75c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.15c
Ft. Worth	3.50c
Los Angeles	3.30c
New York	3.24c
Philadelphia	2.65c to 3.00c
Pittsburgh	2.90c
Portland	3.00c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.15c
St. Paul	2.80c to 3.20c
Tulsa	3.80c to 4.06c

IRON BARS

Baltimore	2.80c to 3.31c
Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
Ft. Worth	3.50c
New York	3.24c
Philadelphia	2.65c to 3.00c
St. Louis	3.15c
Tulsa	3.80c to 4.06c

REINFORCING BARS

Baltimore	2.70c to 3.31c
Boston	3.265 to 3.50c
Buffalo	2.75c
Cincinnati	3.00c
Cleveland	2.50c to 3.00c
Detroit	3.15c
Ft. Worth	3.50c
*Los Angeles	3.05c
**Los Angeles	3.30c
New York	3.15c
Philadelphia	2.80c to 3.00c
Pittsburgh	2.50c to 2.75c
*San Francisco	2.85c
**San Francisco	3.10c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.75c to 4.00c
Youngstown	2.50c to 2.60c

*Carload. **Less carload.

STANDARD STRUCTURAL SHAPES

Baltimore	2.75c to 3.41c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.00c
Detroit	3.25c
Ft. Worth	4.00c
Los Angeles	3.20c
New York	3.34c
Philadelphia	2.65c to 3.00c
Pittsburgh	3.00c
Portland	3.10c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.35c
Tulsa	3.80c to 4.16c

PLATES

Baltimore	2.75c to 3.41c
Balti., 3/16-in.	2.95c to 3.61c
Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.00c
Cleve., 3/16-in.	3.225c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Ft. Worth	4.50c
Los Angeles	3.20c
New York (sheared and universal	3.34c
New York (floor)	5.25c
Philadelphia	2.65c to 3.00c
Phila., 3/16-in.	2.85c to 3.20c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.25c
Tulsa	3.80c to 4.16c

No. 10 BLUE ANNEALED SHEETS

Baltimore	3.25c to 4.06c
Boston 3/16-inch	3.915c
Buffalo	3.80c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.25c
Detroit	3.65c
Los Angeles	4.00c
New York	3.89c
Portland	4.00c
Philadelphia	3.30c
Pittsburgh	3.30c
San Francisco	4.00c
Seattle	4.00c
St. Louis	3.60c
St. Paul	3.75c
Tulsa	4.05c to 4.25c

No. 24 BLACK SHEETS

Baltimore	3.60c to 4.21c
Boston	4.95c
Buffalo	4.30c
Chicago	3.95c
Cincinnati	4.05c
Cleveland	3.65c
Detroit	4.10c
Ft. Worth	4.70c
Los Angeles	5.00c
New York	4.20c
Philadelphia	4.15c
Pittsburgh	3.75c
Portland	4.75c
San Francisco	4.90c
Seattle	4.75c
St. Louis	4.45c
St. Paul	4.20c
Tulsa	4.75c

No. 24 GALVANIZED SHEETS

Baltimore	4.60c to 5.17c
Boston	5.65c
Buffalo	5.15c
Chicago	4.80c
Cincinnati	4.90c
Cleveland	4.50c
Detroit	5.05c
Ft. Worth	5.75c
Los Angeles	5.75c
New York	4.95c
Philadelphia	5.10c
Pittsburgh	4.50c
Portland	5.50c
San Francisco	5.65c
Seattle	5.50c
St. Louis	5.25c
St. Paul	5.15c
Tulsa	5.55c

BANDS

Baltimore	3.30c to 4.06c
Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.65c
Detroit	3.80c
Ft. Worth	4.40c
Los Angeles	4.05c
New York	3.99c
Philadelphia	3.60c
Pittsburgh	3.60c to 3.65c
Portland	4.25c
San Francisco	4.15c
Seattle	4.00c
St. Paul	3.90c
Tulsa	4.71c

HOOPS

Baltimore	4.16c
Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cincinnati	4.40c
Cleveland	3.65c
Detroit	4.30c
New York	4.49c
Philadelphia	3.85c
Pittsburgh	4.25c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds, hexagons	Flats, squares
Baltimore	3.50-4.00c	4.00-4.50c
Boston	4.05c	4.55c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.65c	4.15c
Detroit	3.85c	4.35c
Los Angeles	5.25c*	
New York	4.00c	4.50c
Philadelphia	4.00c	4.50c
Pittsburgh	3.60c	4.10c
Portland	5.00*	
San Francisco	4.25c*	
Seattle	5.00c*	
St. Paul	3.85c	
Tulsa	4.66c	5.16c

*Rounds only.

COLD ROLLED STRIP

Boston, 0.100-inch, 500-lb. lots	6.00c
Buffalo	5.85c
Chicago*	6.10c
Cincinnati	7.15c
Cleveland*	5.95c
Detroit*	6.05c
New York	5.75c
Philadelphia	5.50c

*Net base, includes charge for straightening, cutting and boxing, one ton or more.

FOREIGN IRON AND STEEL
New York duty paid

Swedish, hollow drill steel	14.00c
Swedish iron bars, rounds	6.25c

FLATS AND SQUARES—SWEDISH

Baltimore	6.50c
New York	6.50c
Philadelphia	6.50c

WELDED PIPE

Discounts from warehouses, New York City Standard Steel Pipe

WROUGHT STEEL PIPE

	Black	Galvanized
⅛-inch butt	—28%	+21%
¼-⅜-in. butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½-6-in. lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11-12-in. lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvan.
¼ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	— 1	+ 9
1-1½-in. butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 6
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Coast Demand Holds Up

Plate, Shape and Cast Pipe Business Is Heavy—
Prices Firm—Inquiry Good

SAN FRANCISCO, April 30.—(*By Air Mail*)—General business conditions on the Pacific coast continue to show improvement, prices are firm in nearly all lines, considerable business has been booked and much new work is in sight. Awards of plates, shapes and cast iron pipe again feature the markets. Included among the larger lettings were 5000 tons of plates and shapes for a gas holder at Long Beach, Calif., 2100 tons for a penstock for the Feather River Power Co., San Francisco, 1225 tons for a garage in Portland, Oreg., and 2575 tons of 2-inch cast iron pipe for Los Angeles.

Pig Iron and Coke

Activity in pig iron and coke has shown little improvement and sales recently have not been numerous, while tonnages booked have involved only small lots. Prices remain unchanged.

Coast Pig Iron Prices

Utah basic	$25.00 to 26.00
Utah foundry	25.00 to 26.00
*German	24.25
*Indian	25.00
*Dutch	24.50

*C.i.f. duty paid.

Bars, Plates and Shapes

Awards of reinforcing bars this week totaled 300 tons, bringing the total for the year to 17,031 tons, compared with 10,590 tons for the corresponding period in 1926. Only two awards involving over 100 tons were reported. Los Angeles placed 100 tons with a southern jobber, and 140 tons for a school in Fresno, Calif., was booked by a San Francisco jobber who will furnish Belgian material. With the advance of the construction season numerous new projects are coming out. Pending business exceeds 11,000 tons. Prices in the San Francisco district are as follows: in lots of 200 tons or more, 2.85c; in lots of less than 200 tons, 3.10c.

Demand for hoops and bands has shown some improvement the past month. Stocks in consumers' and jobbers' hands are in fair shape. Prices continue about 2.30c, base, Pittsburgh.

Considerable plate work was placed during the week, awards aggregating 9920 tons, bringing the total for the year to 36,000 tons, compared with 32,215 tons for the same period last year. Stacy Bros. booked 5000 tons for a gas holder at Long Beach, Calif. Western Pipe & Steel Co. booked 2100 tons for a pipe-line for the Feather River Power Co., Pacific Car & Foundry Co. took 1800 tons for 600 underframes for the Pacific Fruit Express Co. Pacific Gas & Electric Co., San Francisco, placed 550 and 250 tons, respectively, with Western Pipe & Steel Co. and Steel Tank & Pipe Co. for a penstock. Pending business involves over 1700 tons. New inquiries include 400 tons of riveted pipe for Arcadia, Calif. Prices are apparently firm at 2.30c c.i.f. as a minimum.

Demand for structural shapes continues strong and awards this week totaled 2619 tons, bringing the total for the year to 69,206 tons, compared with 54,074 tons for the corresponding period in 1926. Among the larger bookings were 1225 tons for a garage in Portland, booked by Poole & McGonigle and 900 tons for 600 underframes for the Pacific Fruit Express Co., obtained by Pacific Car & Foundry Co. Pending business totals over 12,000 tons. New inquiries include 800 tons for a boxing arena in San Francisco and 120 tons for a bridge at Napa for the Southern Pacific Co. The price is 2.35c c.i.f.

Cast iron pipe awards this week aggregated 3633 tons, bringing the total for the year to 35,532 tons, compared with 27,530 tons for the same period last year. The largest award involved over 2500 tons of 2-inch pipe for Los Angeles and was apportioned among American Cast Iron Pipe Co., Crane Co., and Pacific States Cast Iron Pipe Co. Burbank, Calif., placed 584 tons with Gibbons & Reed and the United States Cast Iron Pipe & Foundry Co. booked 182 tons for Los Banos, Calif. Pending business calls for close to 9000 tons. Arcadia, Calif., has inquired for 2190 tons but will also take alternative bids on riveted, standard and reinforced concrete pipe. Bids open next week on 3700 tons for Long Beach, former bids being rejected. The 270 tons of standard pipe for the Ramona irrigation district, Ramona, Calif., went to riveted steel. The Coast Counties Gas & Electric Co. placed 360 tons each of 6⅝-inch line pipe jointly with the Crane Co. and the Grinnel Co.

Sheet demand is by no means strong and sales continue to involve small lots. The state of Washington placed 400 tons of black sheets for 1928 license plates with the Columbia Steel Corp. Prices continue unchanged.

Coal Mines Go Nonunion

PITTSBURGH, May 3.—About 60 per cent of the bituminous coal tonnage in the Pittsburgh district has declared for the open shop principle to date, a recent survey reveals. Philip Murray, international vice president of the United Mine Workers, declares that nonunion operators are producing only a little more than 10 per cent of the district's normal output. The union has signed up 62 mines in the district, which represent in tonnage and man power about 1½ per cent of the district totals.

Figures show that mines which produced 17,992,000 tons of coal in 1924 under union conditions are either operating nonunion or have declared their intention of doing so when they reopen. These figures would indicate that 58 per cent of the total tonnage of 30,965,000 for 1924, as reported by the Pennsylvania state department of mines, has become nonunion. But according to Mr. Murray, the nonunion mines now working are producing at the rate of 5,000,000 tons yearly, and the average yearly production under union conditions was nearer 45,000,000 tons than the 30,000,000 tons given for 1924 by the department of mines.

Western Pennsylvania has become the battleground of the strike, as stated recently by Ellis Searles, editor of the *United Mine Workers' Journal*. This is further indicated by the fact that John L. Lewis, president of the union organization, and other leaders, are devoting unusual attention to this district and making vigorous efforts to break down operation of the big mines which are producing coal with nonunion labor.

On the other hand, coal stock piles are greater than they were April 1, and large industrial units, although declaring for the open shop, have not attempted operations and will not until they have exhausted their reserves. The open shop movement here began with the Pittsburgh Coal Co. in 1925, giving that company almost a 2-year jump on the strike.

The 62 mines which have signed up temporary agreements to pay the Jacksonville scale of wages employ 714 men, compared with 43,340 miners employed in the district in 1924, as reported by the United States bureau of mines, or only a little over 1½ per cent of the man-power of the mining district.

February orders for steel boilers totaled 1070, compared with 1000 in January and 8520 in the last half of 1926, according to returns of 68 manufacturers to the department of commerce.

Bethlehem Operates at 83 Per Cent

Current bookings and operations of the Bethlehem Steel Corp. are at 83 per cent of capacity, compared with 79.8 per cent for the first quarter. In the first quarter of 1926 the company's operations averaged 87.2 per cent. President Eugene G. Grace, in a statement accompanying the quarterly report, said that indications point to a good year in the industry, although bookings might fall below 1926.

Net income of the company in the first quarter was $5,618,038, compared with $4,481,316 in the preceding quarter and $5,865,850 in the first quarter of 1926. The income account compares as follows:

	First Quarter 1927	Fourth Quarter 1926	First Quarter 1926
Total income	$11,757,289	$10,751,118	$11,973,038
Interest	2,883,958	2,988,128	3,065,032
Balance	8,873,331	7,762,990	8,908,006
Depletion depreciation, etc.	3,255,293	3,281,675	3,042,156
Net income	5,618,038	4,481,316	5,865,850
Dividends: Preferred ..	1,697,500	1,698,695	1,688,795
Total	$ 1,697,500	$ 1,698,695	$ 1,688,795
Surplus	$ 3,920,538	$ 2,782,621	$ 4,177,055

President Grace announced that orders on hand March 31, 1927, amounted to $45,791,990, against $49,912,796 at the close of the previous quarter and $59,390,376 on March 31, 1926.

Virtually all buying continues on a hand-to-mouth basis, and President Grace said that he felt some sense of security should be derived from the present method of doing business, provided, of course, there were no serious breaks. He said that while prices during the first quarter were somewhat easier than a year ago, there was now a stronger tendency in some lines, notably sheets. He declared that his company's billing prices in first quarter averaged about 50 cents less than in the corresponding period of 1926; also, that the difference in operations between the first quarter of this year and that of last amounted to about 100,000 tons.

He expressed the opinion the coal strike is having little effect on the steel industry generally, and pointed to the large amount of production at nonunion mines. Asked concerning the wage situation in the steel industry, Mr. Grace thought that current wages could be maintained for considerable time, and added that he had heard little comment one way or the other.

The European cartel, he declared, appears to be getting under way with good effect generally. Certainly, it should not hurt world conditions, he added, and should prove of material benefit to the countries whose industries are directly involved.

Makes Much Iron on One Furnace Lining

Inland Steel Co. blew out its No. 3 blast furnace at Indiana Harbor, Ind., May 1, at which time it had produced on one lining a total of 1,040,652 tons of pig iron. This represented an average daily production of 624 tons. Coke consumption averaged 1880 pounds per ton of iron. The company expects to blow out its No. 2 furnace for relining the last of July, at which time, approximately 1,233,227 tons of iron will have been made. This will be a daily average of 652 tons with an average coke consumption of 1736 pounds per ton. The No. 2 furnace on its previous lining made 1,537,956 tons, a daily average of 526 tons and an average coke consumption of 1918 pounds per ton of iron.

Detroit Labor Gains

Distinct improvement in employment conditions at Detroit came in the week ended April 26. The barometer of the Employers' Association of Detroit, based on reports from plants employing two-thirds of the industrial labor in the district, shows 226,363 to have been employed. This was a gain of 1715 over the preceding week. Although 25,215 under the corresponding week of 1926, the gap in the week ended April 12 was almost 40,000.

Lebanon Iron to Resume

The Lebanon Iron Co. is completing a number of improvements at its plant at Lebanon, Pa., and expects to resume operations there about June 1. The company is installing new pulverized coal and oil burners in its four rotary puddlers, and it also is installing automatic machines throughout in its spike department.

Fuel Output Unchanged

Beehive coke production in the week ended April 23 was 177,000 net tons, a gain of 1000 tons over the preceding week, says the federal bureau of mines. Bituminous coal output in the week ended April 23 totaled 7,929,000 net tons, against 8,001,000 tons in the preceding week.

United States Steel Corp. service medals were awarded recently to 240 employes and 135 pensioners of the south works of the American Steel & Wire Co., Worcester, Mass.

Pig Iron Is Easier

(*Concluded from Page* 1165)

merchant stacks in blast. The second Iroquois stack may not be blown in before June.

Cincinnati, May 3.—Sentiment in the pig iron market is improved slightly, inquiries indicating reduced stocks at some melters' yards. Two Indiana users are in the market, one for 1000 tons of foundry iron and the other for 2000 tons, both for last half. A Piqua, O., stove company placed 600 tons of northern iron; a central Ohio foundry also purchased 600 tons of northern iron. A local firm sold 2500 tons of southern charcoal iron for delivery in the last half to the Pittsburgh district. A Dayton firm purchased 500 tons of 7 to 8 per cent silvery iron. Prices are steady.

St. Louis, May 3.—Pig iron producers and distributors are making unusual efforts to close sales, but have not met with signal success. It is not a matter of price that holds down buying, but uncertainty relative to future business. Total sales the past week approximate 5000 tons, all foundry, for delivery this quarter. There has been a gradual decrease in the melt since April 10, the chief cause being the floods. Prices are steady. Southern iron is offered at $18, furnace, and northern iron of the same grade is $20. The leading local producer asks $20.50 to $21, f.o.b. Granite City.

Birmingham, May 3.—Pig iron orders are small but numerous, and the aggregate is sufficient to warrant steady production. Quotations are firm at $18, base, Birmingham. Stocks on furnace yards are normal. Large melters who in the past purchased 10,000 to 40,000 at a time now buy 1000 to 5000 tons. Smaller interests buy for two weeks ahead.

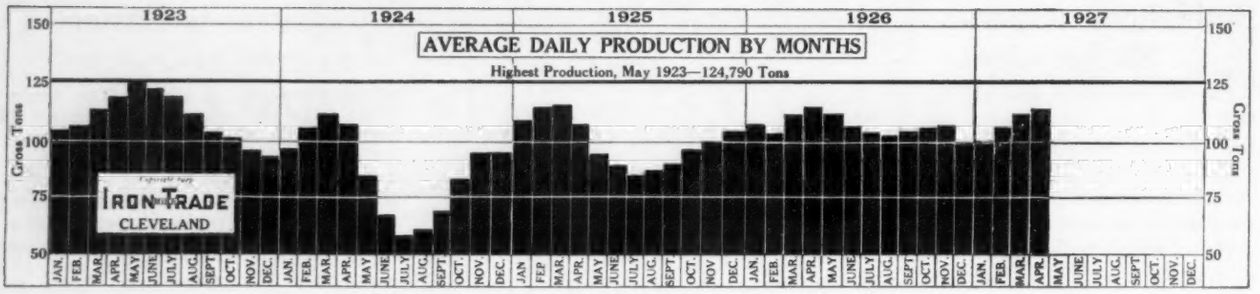
Jobber Business Gains

(*Concluded from Page* 1177)

showed steady activity the past week, at firm prices. Wire products prices are unsteady. Cold rolled products business has been curtailed by mills taking small orders at mill prices. A good May is anticipated by Chicago jobbers.

Philadelphia district jobbers report April business somewhat under March. The principal new development is the greater frequency with which 2.65c, base, delivered locally, is being quoted on attractive lots of steel bars. In some exceptional cases 2.50c, has been done. These prices originated on foreign and liquidated bars, but the trade has been meeting the competition in numerous cases. Some shading of sheet prices is noted.

April sales from Cleveland warehouses were slightly behind March for a majority of jobbers. The number of April orders in some cases exceeded those in March, but tonnage per order was smaller. Business in May and June is expected to show marked increase over April. Prices for Cleveland trading are firm, generally. No increase is expected in sheet prices until the recent mill changes are established more firmly.



April Iron Output Moves Upward

CONTRARY to expectations that coke pig iron operations would decline slightly during April, the average daily rate of output increased approximately 1500 tons over the daily rate for March. This marks the fifth consecutive month to show improvement and brought the level less than 1000 tons from the 1926 high point of last April. Stack operations, however, turned down a little and on the last day of April furnaces in blast totaled one less than on March 31.

Production of pig iron in April amounted to 3,413,431 gross tons, which compared with the 3,482,107 tons of March, was a loss of 68,676 tons, or but little more than half of one day's output. April, however, had only 30 days, against 31 in March. Average daily production for the month just closed was 113,781 tons, compared with 112,326 tons in the preceding month. The increase was 1455 tons per day, or 1.3 per cent. This was the best daily rate since the 114,627 tons of April a year ago.

On the last day of the month, 222 of the country's 364 blast furnaces were producing iron, this representing 60.9 per cent. Active stacks on March 31 totaled 223 out of 365, or 61.1 per cent. During the month, two merchant furnaces were blown in and 3 were blown out or banked. Of the nonmerchant or steelworks class, 3 were blown in and 3 blown out.

With the abandoning and dismantling of the Covington, Va., blast furnace of the Low Moor Iron Co., the total of serviceable units in the country has been reduced from 365 on March 31 to 364 on April 30.

Stacks blown in during the month were: In Ohio: Lorain No. 2, National Tube Co. In Pennsylvania: Sharpsville, Allen S. Davison; and Donora No. 2, American Steel & Wire Co. In Tennessee: Cranberry, Cranberry Furnace Co. In Illinois: South Works No. 7, Illinois Steel Co.

Stacks blown out were: In Ohio: Haselton No. 5, Republic Iron & Steel Co. In Pennsylvania: Carrie No. 2 and New Castle No. 4, Carnegie Steel Co.; Sheridan No. 2, Lavino Furnace Co.; and Robesonia, Robesonia Iron Co. In New York: Genesee, Corrigan-McKinney Steel Co.

Active Blast Furnaces

	In blast	Total	Per Cent
April	222	364	60.9
March	223	365	61.1
February	218	369	59.0
January	210	369	56.9
December	203	369	55.0
November	216	375	57.7

MONTHLY PRODUCTION

	1927	1926	1925
January	3,101,346	3,319,789	3,372,207
February	2,940,604	2,923,850	3,214,067
March	3,482,107	3,458,171	3,571,422
April	3,413,431	3,438,805	3,211,235
May		3,477,820	2,933,907
June		3,232,478	2,679,045
Total 1st half	12,937,488	19,850,913	18,981,883
July		3,224,663	2,665,262
August		3,200,723	2,707,171
September		3,163,269	2,725,885
October		3,334,206	3,017,889
November		3,237,992	3,023,257
December		3,089,175	3,249,057
Total 2nd half		19,250,028	17,388,521
Grand total	12,937,488	39,100,941	36,370,404

AVERAGE DAILY PRODUCTION

	1927	1926	1925	1924	1923
Jan.	100,043	107,039	108,781	97,273	104,136
Feb.	105,021	104,423	114,788	105,987	106,925
Mar.	112,326	111,554	115,207	111,787	113,664
Apr.	113,781	114,627	107,041	107,537	118,210
May		112,187	94,642	84,515	124,790
June		107,749	89,301	67,427	122,262
July		104,021	85,976	57,531	118,860
Aug.		103,249	87,328	60,741	111,254
Sept.		105,442	90,862	68,454	103,917
Oct.		107,555	97,351	79,419	101,375
Nov.		107,933	100,775	83,832	96,373
Dec.		99,651	104,808	95,367	93,952
Ave.	107,787	107,126	99,645	84,908	109,659

DIVISIONS OF PRODUCTION

1926	Merchant	Non-merchant	Spiegel	Ferro-manganese	Other ferro
Jan.	724,946	2,594,843	7,746	32,924	1,607
Feb.	622,121	2,301,729	7,084	22,309	1,464
Mar.	733,321	2,724,850	7,339	24,064	1,942
April	779,310	2,659,495	7,051	24,134	1,598
May	797,539	2,680,281	6,990	22,979	1,704
June	734,823	2,497,655	5,864	25,378	.....
July	758,166	2,466,497	3,699	26,873	.....
Aug.	682,017	2,518,706	4,372	23,557	.....
Sept.	684,420	2,478,849	2,925	25,218	.....
Oct.	712,872	2,621,334	6,295	28,444	516
Nov.	710,362	2,527,630	7,565	31,903	.....
Dec.	743,612	2,345,563	7,140	31,727	.....
Tot.	8,683,509	30,417,432	74,070	319,510	8,826
1927					
Jan.	745,766	2,355,580	7,486	32,844	.....
Feb.	642,804	2,297,800	7,045	24,560	.....
Mar.	762,354	2,719,753	7,650	27,833	.....
April	739,927	2,673,504	12,907	24,735	.....

APRIL PIG IRON

	No. of stacks	No. in blast last day of month Apr.	Mar.	Total tonnage made Merchant	Nonmerchant	Totals Apr.	Mar.
Ohio	70	46	46	142,320	619,313	761,633	804,181
Pennsylvania	124	76	78	176,000	979,453	1,155,453	1,185,700
Alabama	34	23	23	108,355	140,568	248,923	268,016
Virginia	15	2	2	6,335	.....	6,335	7,627
New York	26	15	16	107,828	102,657	210,485	217,937
New Jersey	3	0	0	.....	.....	.....	.....
Illinois	26	18	17	100,068	223,965	324,033	311,695
Colorado	5	3	3				
Indiana	18	18	18				
Maryland	6	6	6	23,392	470,142	493,534	489,565
Wisconsin	5	1	1				
Kentucky	5	1	1				
Massachusetts	1	1	1				
Tennessee	11	2	1	29,841	66,831	96,672	79,821
Utah	1	1	1				
West Virginia	5	3	3				
Michigan	4	4	4				
Minnesota	3	2	2				
Missouri	1	0	0	30,839	47,882	78,721	82,082
Texas	1	0	0				
Spiegel and ferro—all states	....	....	....	14,949	22,693	37,642	35,483
Total	364	222	223	739,927	2,673,504	3,413,431	3,482,107

Managing with Low Inventory

Hand-to-mouth Buying Creates New Problems for Production Engineers—Many Manufacturers Keeping Stocks Near Vanishing Point—American Management Association Copes with Difficulties

LOW inventories, result of widespread policy of hand-to-mouth buying, are thrusting new problems on production managers and industrial engineers. At the same time, these conditions are forcing co-operation between industries to an extent which might never be attained without such influence.

Papers and discussions at the meeting of the American Management association in Detroit, April 27-29, centered on the subject of how to keep down inventories and operate efficiently; in other words, how to make plant methods fit in with executives' determination to buy "hand-to-mouth."

A representative of a university's business research bureau suggested "zero inventories" as the ideal; promptly refuted by practical production managers, who see need for a reasonable "buffer" between supply and demand. "Zero inventories," however, were shown to be the goal sought by many manufacturers.

Ruthless cancellation of orders, withholding or radical modification of specifications, leave no alternative for some companies, to avoid being caught "holding the bag."

The necessity for speed and flexibility is compelling companies to work with their vendors, or supply sources, to a degree never heard of before in business circles.

The meeting was held in co-operation with the American Society of Mechanical Engineers and Detroit section, Society of Automotive Engineers. In all 200 registered.

Reliability of Supply Sources Essential

HOW manufacturers' efforts to keep down inventories work back upon the vendors was shown by J. E. Padgett, Spicer Mfg. Co., Plainfield, N. J., makers of automobile forgings.

"We must buy four to six weeks a head, and yet keep in step with the automotive industry which within two days' time will increase its orders from us 100 per cent, and within the next three or four days cut them back 25 per cent.

"We must outguess the motorcar manufacturers themselves as to the extent of their sales. Somewhere along the line there must be a reservoir. Simplification and standardization will aid in the solution of this problem. If we get caught with a large inventory of specially made products which become obsolete overnight we are out of luck.

"We also must see our vendors; determine their facilities, their dependability, and their flexibility for serving us. Our whole organization has been trained to think of inventories in terms of days; this shows up unbalanced conditions."

He tabulated the elements of his company's system for control of raw material as follows:

1. Selection of raw materials.
2. Selection of vendors.
3. Education of vendors.
4. Appointment of some executive to control inventories.
5. Monthly material releases, covering three months' manufacturing program.
6. Control of quantities in proportion to the present and expected future schedules.
7. Control simplified by translation of all quantities to daily averages.
8. A policy of management that prohibits speculation in materials.
9. Most important a trained organization and a definite detail policy of inventory control.

A sales forcast is the foundation on which all management control rests, in the opinion of Carl J. Sherer, treasurer, Marmon Motor Car Co. Granted the forecast is correct, he said, there are four fundamental conditions that must be observed by those manufacturers who would abolish their storerooms:

First, a definite production schedule.
Second, a definite purchasing schedule.
Third, reliability of the vendor, and a close follow up system on him.
Fourth, proper plant layout.

With four days for transportation of materials, seven between time of receipt and use, and five days as a margin of safety, his company allows a total of 16 days in its schedule from the time goods are ordered to the day they are used.

A "visible inventory" may be taken at any time by walking through the plant; a surplus or an insufficiency of material is instantly detected. Great savings are said to result; no storekeepers, no clerks, no trucking from storeroom to machine, no idleness of men waiting for material.

"But you must deal only with vendors who are thoroughly reliable; otherwise you may find yourself financing bankrupts merely to get your material," he cautioned.

A. J. Brandt, vice president in charge of operations, Oakland Motor Car Co., said his plant has been operating on such a system for three years; and W. B. Minch, works manager, Jaxon steel products division of the General Motors Corp., added emphatically: "It certainly does work."

At the opening session the same day Oscar Grothe, vice president, White Sewing Machine Co., Cleveland told how his company has reduced its inventories from $4,000,000 to $1,000,000 and at the same increased its business.

"Budget all your expenses carefully, and train all your men to think in dollars and cents, and not percentages," he suggested.

Spirited discussions followed in which Frank H. Fanning, American Rolling Mill Co.; Thomas R. Jones, Cincinnati Milling Machine Co.; G. W. Davies, Campbell, Wyant & Cannon Foundry, Muskegon, Mich., and others participated.

* * *

TIME study is the most important phase of present day industrial management, in the opinion of J. D. Towne, industrial engineer, Dayton Steel Foundry Co., who described methods of planning and controlling work in process. The company's product is mainly steel wheels for the automobile industry, and an effective system has been worked out for reducing or accelerating production on short notice and with little confusion.

"All work in process," he said, "is controlled from the production department. Customers' orders are sent direct from the engineering department to the production department where they are worked into the shop schedules according to delivery specifications.

"Two shop schedules are issued by the production department; one for the foundry and the other for the machine shop are issued on Friday for the following week, and the machine shop is normally two weeks behind the foundry. That is, wheels that are on the foundry schedule one week will not appear on the machine shop schedule until the second following week, except in special rush cases. A third schedule issued weekly by the production department controls all shipping. . . . . .

"But a more important detail is the budgeting of man hours, both direct and indirect, according to the amount of work scheduled for any given period.

"In our foundry and machine shop over 90 per cent of the hours worked have been time studied, standard time set on the jobs, whether direct or indirect labor, and a wage incentive in the form of bonus offered each worker for proper accomplishment of his individual duty within the time specified.

"From these standard times, set from studies on practically all jobs, a 'man load' budget is developed for every individual department. That is, from actual time studies the number of hours necessary to be worked in each department for any degree of production is calculated and shown on master sheets.

"Master sheets include every department in the organization, administration, sales, accounting etc. They show the number of hours required to be worked per period from a condition when the plant might be shut down on up in steps of 10 per cent increments to 100 per cent capacity.

"The actual daily hours worked are posted on the master sheet before 10 a.m. each day and a short study of these figures in comparison to the budget figures shows the departments that have worked too many hours and enabled the comptroller to keep the situation well in hand.

"An accurate budget and an immediate follow up such as this brings under absolute control the item of expense that represents by far the greatest amount of money in the majority of industries. A given production must be attained, and not more than a stated number of hours may be used in reaching this production."

* * *

BANKERS will mark down a material-in process-inventory proportionately more than they will raw or finished products, remarked Charles S. Craigmile, assistant general superintendent, Belden Mfg. Co., makers of insulated wire and cable. His paper on planning and controlling work in process described a thorough system of checking and rechecking on delivery dates, used by the Belden company. By this system each department can schedule its work considerably ahead. Use of a blue sheet for extra requisitions serves as a warning flag. Work in process is controlled by:

1—Accurate estimates and specifications.

2—Definite schedules, both for shipping, and interdepartmental.

3—A definite maximum on the ratio of process inventory to productive labor in each department.

"We have found that perhaps the most effective method of all," he said, "lies in the education of our organization, particularly the ones in advisory capacities, in the basic reasons why such controls are necessary.

"At our foremen's meetings we talk very frankly in terms of actual cost figures and in actual figures of increased profit due to improved turnover. We have found that such a policy of education has not only helped our foremen and other assistants to better control the work going through their departments but also has made them want to control it, because they know exactly why it should be done. Our foremen understand they can't hide anything, because if they put in more material or labor than definitely set for them, process inventories will show it up."

"Industry puts into the hands of its foremen large capital; it must take them into its confidence," supplemented H. V. Coes, vice president and general manager of the Belden company. "If you do that the chances are you will get intelligent co-operation."

Frank H. Fanning, director of the budget, American Rolling Mill Co., said his company has a system of working out an ideal schedule for a year, ideal from the standpoint of capacity, sales, production and costs. The schedule is split into 52 divisions for purposes of comparison of the ideal with the actual.

F. H. MacNaughton, works auditor, Fairbanks, Morse & Co., urged setting definite standards on every job.

* * *

ACCIDENTS and their effect on production was discussed in a paper prepared by L. P. Alford, editor *Manufacturing Industries*, which owing to his absence was read by W. W. Nichols, D. P. Brown & Co., a member of the American Society of Mechanical Engineers. This was a summary of the report of the American Engineering council's committee which investigated the experiences of 14,000 companies.

"There is throughout the country positive indirect relationship between accidents and production," the writer stated. "It is conclusively shown that a steadily increasing production over a period of years is accompanied by simultaneous reduction in frequency and severity of accidents.

"The rate of production per unit of time worked has increased steadily and markedly during recent years.

"In those parts of industry where organized safety campaigns are conducted remarkable reductions have been made in both frequency and severity of accidents to workers.

"There is considerable indication that maximum productivity is dependent on reduction of accidents to an irreducible number. Relatively a small percentage of industrial plants throughout the United States are equipped to carry on well organized safety work. Certain companies with excellent accident and production performance demonstrate the possibility of tremendous improvement in both for industry generally.

"An appalling loss of productive time and resulting loss of production value in American industry may be directly attributed to industrial accidents."

As an evidence of the recent character of organized safety work it was said that 53 per cent of the companies surveyed established such work between 1920 and 1924. The 15 industries in which marked increase in rates of production have been accompanied by equally marked decreases in accident severity rates included iron and steel, iron mining, sheet metal work, by-product coke and castings.

Discussion indicated the breadth of study industrial engineers are giving the indirect loss, that beyond the immediate compensable result. The temporary slowing down of work, the effect on morale and the like was estimated by a representative of the Detroit Edison Co. as several times the direct loss.

(*Concluded on Page* 1185)

Urge Expansion of Research Work in Application of Welding

LIVELY discussion of production welding problems and the relative merits of welding and riveting in structural steel work featured the meetings of the American Welding society and its research branch, the American Bureau of Welding, in the annual convention at the Engineering Societies building, New York, April 27 to 29. More than 200 members and guests were in attendance.

Committee meetings reviewed the research work of the past year and outlined future activities. Officers both of the American Welding society and the American Bureau of Welding were elected. One technical session was devoted to the recent research work in welding of leading manufacturers. In another session production welding was discussed at length.

Of particular interest was a discussion of a new type of residential construction, using light steel members welded together at a total cost equivalent to that of wood and brick.

At a meeting of the Electric Arc Welding committee the importance of corrosion problems was emphasized and further research in co-operation with other engineering societies was definitely approved. A tentative report of the work of Pacific coast interests in testing welds at high temperature was received with enthusiasm as being the first step of research highly important to the oil and power plant industry.

The annual banquet and dance was held Thursday evening at Hotel Commodore.

Would Use Steel as Lumber by Welding and Cutting

ENTHUSIASM over the future of welding ran high at the production welding session on Thursday. Recent rapid progress in structural steel welding was described, and Mr. C. J. Holslag, manager Electric Arc Cutting and Welding Co., Newark, N. J., sounded the death knell of wooden frames in residential building in a vivid description of work using light steel members in a type of construction which closely follows the present method of erecting frame buildings. By the use of suitable welding and cutting apparatus, Mr. Holslag said that steel could be handled very much as wood is handled today. In fact, he claimed that steel is the easier of the two.

In this type of construction, standard light channels without any drilling or cutting are delivered to the job and are then erected as needed, using the plumb bob and level just as a carpenter does with wood. In case a piece is too long, it is quickly cut off, and in case it is too short, it is just as quickly lengthened by welding another piece to it. This is a field of activities, says Mr. Holslag, which in no way interferes with riveting interests. It is, therefore, one which all steel interests can back and it is destined, in Mr. Holslag's opinion, to entirely supplant the use of wood frames in residential construction.

The new president, F. Malcomb Farmer, chief engineer Electrical Testing Laboratories, New York, gave a brief resume of the work of the association during the past year in opening the production welding session. "The future efforts of the society," he said, "should be devoted largely to the expansion of the application of the art of welding." He then turned the session over to the past senior vice president, E. M. T. Rider, railway engineer, Third Avenue Railway Co., New York. Mr. Rider spoke at a considerable length on the educational value of the Lincoln arc welding prizes which are presented through the American Society of Mechanical Engineers to encourage improvements in the art of arc welding. He then introduced J. C. Lincoln, president Lincoln Electric Co., Cleveland, who originated the prizes. He said that one of the large electric companies reported a saving in 1926 of $1,000,000 through the use of welded steel parts. This amount he estimated as 5 per cent of this company's possible saving through extension of the same policy. Mr. Lincoln described his company's use of steel to replace cast iron in production of electric motors. He suggested the use of steel for diesel engines and also for engine lathes and other machine tools.

In discussing Mr. Lincoln's paper James W. Owens, director of welding, Newport News Shipbuilding & Dry Dock Co., Newport News, Va., told of his work in redesigning cast steel throttle valves so that they could be made from welded rolled steel. He said he wanted to emphasize the savings possible through the elimination of castings. He said one item of saving was the elimination of pattern storage space.

E. H. Ewertz, general manager, Bethlehem Shipbuilding Corp., Moore Plant, Elizabeth, N. J., said that one of the things most desired in the introduction of welding in industry was the discarding of tradition in the thought of designers. He said he felt that medals and prizes offered an excellent means of stimulating younger men entering the welding industry.

Stern frames of ships are being successfully made by the thermit weld process, according to J. H. Deppeler, chief engineer, thermit department, Metal & Thermit Corp., Jersey City,

New Officers

AMERICAN WELDING SOCIETY

President

F. MALCOLM FARMER
Chief engineer, Electrical Testing Laboratories, New York

Senior Vice President

J. H. EDWARDS
Assistant chief engineer, American Bridge Co., N. Y.

Vice president, Pacific coast division

G. O. WILSON
Engineer, Standard Oil Co. of California, San Francisco

Vice president, Southern division

R. L. SHEPHERD
Southern Editor, *Electrical World*, Birmingham, Ala.

Directors

J. J. Crowe, engineer in charge of apparatus, research and development department, Air Reduction Sales Co., Jersey City, N. J.

H. S. Smith, chief engineer, Prest-O-Lite Co. Inc., New York.

W. C. Swift, research engineer, American Brass Co., Alexandria, O.

W. H. Gibb, president, Gibb Welding Machines Co., Bay City, Mich.

N. J., who read a paper on production welding by the thermit process. He showed views of test frames bent 180 degrees cold at the weld without fracture. Instead of making elaborate rudder forgings of one piece, the blades and stems are made separately and are joined with a thermit weld.

Mr. Deppeler showed views of a test cylinder made of 2-inch steel plate rolled into a cylinder 2 feet in diameter and 3 feet long and joined with a longitudinal weld. The ends of the cylinder were then hot spun both abruptly inward and outward, and the behavior of the metal was exactly the same as if no weld had been made.

M. F. Bayer of the Simmons Co., New York, gave an illustrated talk on the oxyacetylene welding of furniture, and described an ingenious method of making clean welds in production work to avoid the necessity of removing excess metal. A. D. Camp, in charge of research work of the United States Aluminum Co. at Buffalo, said that his company is now sucessful making furniture of aluminum alloy by welding. This furniture which is designed particularly for office, railroad and restaurant use, weighs half as much as wood.

Experts Describe Recent Achievements in Welding

ONE of the most important sessions of the convention was devoted to a symposium of welding research activities of large manufacturers. This session was introduced by President F. M. Farmer, who gave a brief review of the policies of the association and its plans for future work.

According to Mr. Farmer, the work of the bureau may be divided under four headings: Rail joints, wire specifications, pressure vessels and structural steel. For research work under the last two headings a fund of about $50,000 will be available during the coming year. He announced the American Welding Society will join with the American Society for Steel Treating in its exposition at Detroit in September.

Other items mentioned in Mr. Farmer's talk at this time included the appointment of William Spraragen, National Research Council, New York, as technical secretary of the society, the early publication of a series of articles covering a training course for welders, and the appointment of a committee on welding of steam pressure pipe with William Spraragen as chairman.

Research work is intended to produce better products at a lower cost, according to C. A. McCune, director of research, American Chain Co., Bridgeport, Conn., who gave a paper on recent research work of his company. There are five branches to this work, namely, physics, chemistry, metallurgy, welding and engineering. Results of research work at the American Chain Co. pay he said. One of the important fields of investigation is that of welding wire. Different wire analyses are called for in the various welding jobs based upon the sizes of the pieces to be welded and the composition of the base metal. He told of the important work of A. V. deForest of his research department in developing a nondestructive test of welds and of steel.

In the absence of J. H. Deppeler of the Metal & Thermit Corp., Jersey City, N. J., his paper was reviewed by William Spraragen. R. R. Moore, chief, physical testing branch, War Department, Air Service, McCook Field, was also absent, and his paper on fatigue of welds was presented for discussion. It was pointed out that this paper confirms the work of H. F. Moore of the University of Illinois. The published paper, which is profusely illustrated, describes many types of fatigue tests. Welds which are stronger than the base metal in tension frequently fail under different fatigue tests devised by Mr. Moore.

Summarizing the results of his tests, Mr. Moore places the fatigue strength of welded tubes between 13 per cent and 35 per cent of the tensile strength of the weld. Tubes with thin walls show better resistance to fatigue than heavier tubes.

J. J. Crowe, engineer in charge of apparatus, research and development department, Air Reduction Sales Co., Jersey City, N. J., described the work of his laboratory. This comes under six heads, namely, work for customers, development work, study of gasses, study of fluxes, study of welding rods, study of torches. As a result of recent investigation he has been able to reduce the gas ratio.

Chemical analysis of welding rods is not satisfactory according to Mr. Crowe, who finds actual operating tests furnish the best means of deter-

New Medal for Welding

AT THE annual banquet on Thursday night announcement was made of a gold medal to be awarded each year for distinctive accomplishment in some branch of the field of welding. This medal is presented by S. W. Miller, consulting engineer, Union Carbide & Carbon Research Laboratories, Long Island City, N. Y. It will be known as the Miller medal and further details governing its award will be worked out later by a committee.

High Lights in President's Address

THE society is eight years old, has 800 members, and a substantial cash surplus.

Its policy is to promote the art and science of welding through meetings, technical papers, publication of a monthly journal, exhibits, and research organization.

Aggressive leadership in the welding field in industry urged.

Licensing or approving of welders by the society suggested as a means of extending confidence in welded structures.

Assistance to users of welding processes and manufacturers of welding equipment respecting safety measures is suggested.

The society might furnish expert advice to users of welding processes.

There is a field for co-operative propaganda which will raise ethical as well as technical standards in the welding industry.

It is desirable that a majority of the society membership be representative of the users of the welding process.

The Journal should be expanded and co-operation with educational institutions should be promoted.

Shall our policy be aggressive leadership in the welding field with service in all directions which will promote the art and the industry?

mining quality. As an interesting side issue Mr. Crowe told about the recent development of liquid oxygen commercially known as 1. o. x. which is being used in place of dynamite.

In discussing Mr. Crowe's paper, J. C. Lincoln asked about the chemical reaction in a welding torch. Mr. Crowe said the carbon in the acetylene is changed to CO. Theoretically 2½ volumes of oxygen should be used to one volume of acetylene, but in practice it is better to use 1 to 1. The excess CO or CO_2 thus produced gives an insulating envelope surrounding the weld which tends to reduce oxidation.

J. W. Owens presented a paper covering recent welding research of the Newport News Shipbuilding & Drydock Co. He predicted a great future for welding in the shipbuilding industry. He told of success in welding galvanized sheets.

In discussing this last point F. A. Sanborn, Western Electric Co., LaGrange, Ill., questioned the effect on the coating at the weld. Mr. Owens said that his experience indicated that there is no greater tendency to corrode at the weld than at unwelded points. He said if you do not remove the coating which adheres to the electrode during welding, some of this apparently is deposited on the welded surface.

J. B. Austin, of the Una Welding & Bonding Co., East Cleveland, reviewed a published paper by R. B. Fehr of the same company, and showed views of welded construction and tests with particular emphasis on street railway work. A new impact test which he described was the subject of considerable discussion.

A. G. Oehler, associate editor, *Railway Age*, questioned the value of an impact test where the blows are heavier than those received in actual practice. J. C. Lincoln also felt that an impact test, speeded up to show results in a few hours or even a few days, is of doubtful value.

An automatic welder which feeds in the welding wire by means of a magnetic clutch was described by D. H. Dehoe, industrial engineering department, General Electric Co., Schenectady, N. Y., who also described and showed slides of other welding machinery. Considerable discussion centered on Mr. Dehoe's description of steel ties made out of old rails. He stated that the only cost of material was the continuation of interest on the rail investment. He said that the cost of a steel tie made with welded rails was about $1 as against $3 for a wooden tie.

A. G. Bissell, general engineer, westinghouse Electric & Mfg. Co., East Pittsburgh, described an interesting method of increasing the strength of welds of steel shafting. Large shafts butt joined are slowly revolved past the welding arc. Immediately following the weld at a distance of about 1 inch an air hammer is operated on the newly welded metal. By this means an improvement of 25 per cent in strength is obtained. This method is far better than any method of subsequent heat treatment and is economical.

Mr. Bissell described the activity of his company in structural welding. He said they found that the cost of field welding on structural steel was about $4.90 a ton, and that the time for an ordinary office building is about the same as with riveting. It

J. R. Dawson, metallurgical engineer, Union Carbide & Carbon Laboratories, Long Island City, N. Y., in a paper describing recent work of his company said he felt it should always be possible to have a weld as strong as the base metal. He said they had done much work in developing new welding rods, and that at present it was possible to have welds without heat treatment show strength of 90,000 pounds per square inch. Welds used in airplane work which are heat treated have shown tensile strength in excess of 100,000 pounds per square inch.

In reviewing the session on research work A. D. Camp said he was disappointed not to hear more about nonferrous welding, and as a result the association plans a longer research session at its next convention.

Low Inventories Urged

(*Concluded from Page* 1182)

W. B. Minch, works manager, Jaxon steel products division of the General Motors Corp., said that accidents are less frequent among young men in the training period than among experienced workers. Also, he observed, workmen get careless when they anticipate a letdown in production.

W. A. Rowe, production manager, Black & Decker Mfg. Co., Baltimore, read a paper on production control, mainly a description of a large number of blank forms and how they are used by his company.

L. I. Shaw, development engineer, Western Electric Co., read a paper on "Quality Inspection of Materials," illustrated with lantern slides showing various instruments used by that company. Over 10,000 items of raw material are purchased. Only 10 per cent of the quantity is covered by specifications, but 90 per cent as to value. Some delicate testing machines are operated by ordinary labor. He illustrated methods of testing and calibrating testing machines.

* * *

A PICTURE of Russian industry today was presented by Frank J. Tone, president, the Carborundum Co., at an informal dinner Thursday night. He said only the big industries have been nationalized, and have not been demoralized, but now are producing at 90 per cent of prewar capacity and will do better this year. Some large industries are badly managed, but others are well managed and would be a credit to any country. He was impressed by the technical staffs, and by the spirit of the men, who are serious and earnest. One does not see much parading, or holding of meetings, and the workers do not seem much interested in politics.

Russia has a tremendous desire to become educated. Three times as many students are attending technical schools as before the war. The country has vast natural resources and is developing mining and water power and discovering new resources. He stated his opinion that it will become the richest country in eastern Europe. It wants to buy American machinery. He expressed his belief that the present government is stable and has the support of the majority of the workers, who are somewhat better off and happier than under the old government. The government is not communistic today, but democratic. It is adopting many capitalistic principles and wants capital to reconstruct its industries.

H. V. Coes, talked on "Imagine Production without Engineering." He reviewed the development of the factory system through several centuries, from the guilds and cottage system.

John H. Hunt, Chevrolet Motor Co., and president of the Society of Automotive Engineers, presided at the dinner. He expressed gratification that business management is encouraging industrial engineers. These engineers, he said, need a knowledge of financial and economic conditions.

Friday's session was featured by the following papers: "Reducing Production Costs Through Training Old and New Workers," by Walter S. Berry, Scovill Mfg. Co.; "Controlling Avoidable Manufacturing Expenditures During a Change in Design," by E. E. Vender, Ernst & Ernst; and "Controlling Avoidable Manufacturing Expenditures During an Increase or Decrease in Output," by H. G. Perkins, Chrysler Corp.

Equipment Sales Drop

(*Concluded from Page* 1150)

The tool holder carries four tools and each is so spaced and shaped to perform its specific operation on collar, journal, dust guard and wheel seat with a minmum of movement of the carriage.

A large, multiple-spindle, two-way, horizontal boring machine is shown in No. 89, and it can be modified within wide limits for different characters of work. The heads on each end of the machine slide on wide scraped ways and are each driven by a direct-connected motor mounted on the saddle and fed by a hydraulic mechanism, a cylinder being mounted on both sides of each head. The spindles have independent adjustment to take care of grinding of tools and the fixture is mounted on roller bearings and is indexed by hand.

A feature of the double-spindle grinder shown in No. 88 is that it will grind two opposite parallel surfaces simultaneously. Two 24-inch diameter cylinder wheels are mounted in the chucks, each of which is driven by a 20-horsepower motor connected to the spindle through a flexible sliding coupling. The work table, on which suitable fixtures are mounted, reciprocates in and out between the grinding wheels by means of a hydraulic system and through the use of automatically-operated cams and valves, almost any desired motion of the table travel can be produced.

Two new sizes of nibbling machines are described in No. 83. One is the smallest size now made and is intended as a bench machine for cutting small thin stock up to 14 gage. The principal of the operation is the same as in the larger machines. The tool is direct-motor driven and has a cutting speed of 60 inches per minute. The larger nibbler was developed especially for cutting large sheets of chrome-nickel steel ⅜-inch thick. It has a throat depth of 30 inches. Cutting speed is approximately 26 linear inches per minute.

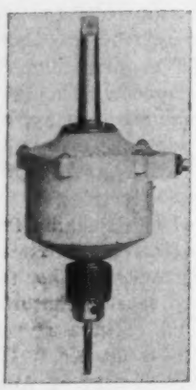
Feed Mechanism Improved

In No. 84 is described a sliding frame hot saw which is notable for its improved type of feed mechanism. It has only one feed motor, a direct-current, shunt-wound, adjustable-speed, 20-horsepower unit, with a speed range of 500 to 1500 revolutions per minute. This motor obtains its current from a direct-current generator which is coupled direct to the main motor driving the saw. By this arrangement, with a suitable direct-current, variable-voltage magnetic controller, the feed of the saw varies with the load on the saw blade, as reflected in the main motor speed.

A saw manufacturer has developed for two of its high-speed friction saws the new rotating attachment, described in No. 78, for cutting large rounds and squares to short lengths in a few seconds. A pneumatically operated chuck grips one end of the piece, rotates it rapidly in front of the saw and then dumps it when the cut has been completed. Levers controlling the saw, cooling water for the saw blade, air valves for operating the pneumatic chuck and a capstan wheel for moving the material forward to the next cut are all located at one central control stand.

The high-speed, cut-off saw in No. 85 is designed to cut cold with a circular-toothed saw a wide range of light metal sections. The tilting frame has a spring cushion stop and is connected with a spiral spring to return the frame to a height necessary to clear material being cut. The blade is fed down through the material by an off-side hand lever attached to the tilting frame and a stop is provided so that the saw will just clear the material being cut.

Accomplishes High-Speed Tapping



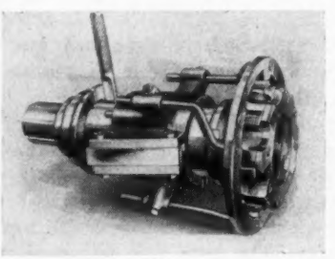
No. 92

For high-speed tapping, a new attachment recently has been designed with a capacity of ¼-inch in steel and 5/16-inch in cast iron or brass. The upper thrust is taken by a ball thrust bearing while the lower thrust is taken by ball bearings. The thrust is taken direct on the drill press spindle when driving the tap forward. For reversing the tap, the drill press spindle is raised about 1/32-inch.

Improved Tap Cuts Taper Threads

No. 94

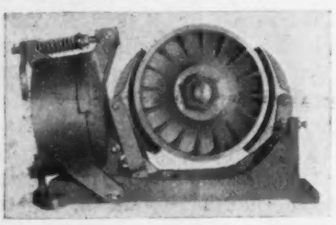
A new receding chaser collapsible tap just announced is designed for cutting tapered threads in tool joints, casing shoes, pipe couplings, pipe flanges, valve bodies, fittings, etc. The body includes the cam collar, cam slide, cam, plunger extension, expanding collar, trip ring rods, etc. The head includes the plunger, chaser blocks, chasers, tap and tap ring.



Magnetic Brake Serviced Quickly

No. 93

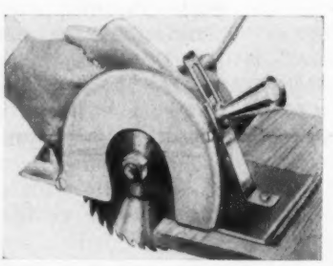
To meet the demand for a magnetic shoe brake giving a longer life of brake shoe linings and permitting quick removal of the motor armature without disturbing any adjustments, the brake shown here has been introduced. No levers or rods pass over the top of the brake wheel. The brake shoe arms operate in opposite directions by means of a simple lever movement having the connecting link in the base.



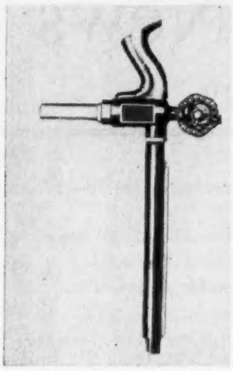
Handsaw Is Electrically Driven

No. 95

Here is shown a new light-type, electrically-driven handsaw, the blade of which revolves at high speed, cutting an edge, which it is said, often requires no planing. The saw is mounted direct to the motor armature and runs in ball bearings. Weight of the tool is 10 pounds. The blade is adjustable for various cuts up to 2 inches. The saw is well guarded as illustrated.



Gun Sprays Refractory Materials



No. 96

For applying surfacings to refractory construction and making repairs to linings in every type of furnace, kiln or oven, a refractory manufacturer has developed the gun shown here. The gun operates on air or steam at 50 pounds pressure or more. The supply pipe of the gun is placed in the liquid refractory mixture and the valve turned on, spraying the mixture evenly over the surface.

Wrenches Are of Double-End Type

No. 97

A new line of chrome-vanadium wrenches of the double end type recently was announced. Jaws are at right angles to the handle.

Develops New Dipped Welding Rod

No. 98

A new dipped steel welding rod for electric arc work has been developed. It permits higher currents and is available in all sizes up to ½-inch.

Siren Provides Factory Signals

No. 99

For use in industrial plants, factories and mines, to give starting and stopping signals a new electric siren has been designed. Sound radius is ½-mile.

Grinding Equipment Line Widened

No. 100

A wrench manufacturer has introduced a new set of six chrome-vanadium wrenches in a kit. The tools are forged, heat treated and nickel plated.

Two Belts Used on Belt Grinder

No. 101

A combination belt sander and grinder now available on the market has provision for the use of two belts 4½ inches wide as well as one 10 inches wide.

Wrenches Are of Vanadium Steel

No. 102

A manufacturer of grinding equipment has added to its line eight new model combination grinding and buffing machines featuring ball bearings.

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Industrial Men in the Day's News

Charles A. Fisher, New President, Jones & Laughlin Steel Corp.

PROGRESSIVE changes in position within the organization have marked his advancement through various offices to the presidency.

BEGINNING his business career at the age of 22 years as a bookkeeper, he has devoted his entire attention to the one company.

A CLEAR thinker possessing a broad vision, he brings to his new position a true concept of the problems and possibilities of the steel industry.

PRESIDENTS of industrial companies often have risen from the ranks of their own organizations, most frequently in the past having been associated almost entirely with production operations. In the past few years the tendency has been to select executives trained in the sales and merchandising angles of business. Few presidents of large corporations, however, rival the unusual experience of Charles A. Fisher, who has just been elected president of the Jones & Laughlin Steel Corp., Pittsburgh, as briefly announced on page 1108 of the April 28 issue of IRON TRADE REVIEW.

It is not remarkable when a bookkeeper in a small store or manufacturing plant rises to the top to become head of his organization, but when the same distance is spanned in a corporation capitalized at more than $100,000,000 and ranking as the fourth largest steel-producing company in the United States, the event assumes unusual significance.

The company to which Mr. Fisher has been elected president possesses 12 blast furnaces, with 2,400,000 tons annual capacity in pig iron, an annual steel ingot capacity of 3,000,000 tons and 2,430,000 tons of finished hot-rolled steel products. The company has coke oven plants with an annual capacity of 1,850,000 net tons of coke and 6,000,000 gallons of light oil. The steelworks and furnaces are located in Pittsburgh and Woodlawn, Beaver county, Pa.

Mr. Fisher started his business career at the age of 22 years with the Jones & Laughlin interests, his first position being that of bookkeeper. His ability in the work he was performing soon won for him an advancement, and his progression through successive promotions was steady and rapid. He has served the Jones & Laughlin Steel Co., predecessor to the Jones & Laughlin Steel Corp., in the capacities of assistant auditor, assistant treasurer, treasurer and assistant to the president. He was made first vice president in charge of finance of the Jones & Laughlin Steel Corp. upon its formation in 1923.

His rise from the bookkeeper's stool to president's chair has been characterized in his ever broadening study of business. All his efforts since he left college have been devoted to one company.

Mr. Fisher is of the modern school of executives. He is a keen thinker, cutting through ambiguity and difficult problems to arrive directly at the point sought. His abilities in corporation financial matters that have contributed largely to his advancement may be traced to his mathematical type of mind that refuses to be confused by the complexities of problems. His concept of present-day business is progressive.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

CHARLES A. FISHER, whose entire business career has been with the Jones & Laughlin Steel Corp., Pittsburgh, was elected president at the annual meeting of stockholders April 26, to fill the vacancy caused by the death of William Larimer Jones last November.

B. F. JONES III

Mr. Fisher has been vice president in charge of finance since the creation of the present corporation in 1923. B. F. Jones III, a grandson of the late B. F. Jones who founded the business in 1850, was made vice president and secretary. He has been secretary since the formation of the present corporation.

T. M. Girdler, vice president in charge of operations, was made a member of the executive committee. B. F. Jones Jr., chairman of the board of directors, and all other officers and directors, were re-elected.

B. F. Jones III, came with the company as assistant treasurer in January, 1919, after service with the United States army as a second lieutenant, having volunteered while a student at Princeton university.

* * *

S. M. Tomlinson, of Frank Samuel & Co., Harrison building, Philadelphia, has returned from a three-month tour of South America, South Africa and the Mediterranean countries in connection with his company's foreign business.

* * *

B. A. Shutts has resigned from the New York Central Iron Works Inc., Hagerstown, Md.

* * *

D. M. MacDowell has been appointed in charge of the Chicago office of the Chambersburg Engineering Co., Chambersburg, Pa.

* * *

J. Carson Agnew has been elected vice president and director of W. J. Rainey Inc., 52 Vanderbilt avenue, New York.

* * *

Ralph M. Roosevelt has been elected vice president of the Eagle-Picher Lead Co. He will be transferred from Hillsboro, Ill., where he was plant manager, to the New York offices.

* * *

P. H. Brigham has been appointed manager, Northwest Engineering Co., at Detroit. He joined the company in 1924. Prior to that time he was a district manager for List & Gifford Construction Co., Kansas City and St. Louis, railroad and highway contractor. In 1910-17, Mr. Brigham was a member of the New York state highway commission. He was connected at one time with the Lakewood Engineering Co., Cleveland.

* * *

Carl L. Huff, since 1923 a member of the sales force of Bliss & Laughlin, Inc., Harvey, Ill., has been named sales manager of that company in charge of the Chicago district. He will manage the sales of the company's cold finished steel and turned shafting products. Mr. Huff formerly was with the department of metallurgy and inspection at the Gary, Ind., works of the Illinois Steel Co. Later he was assistant purchasing agent of the Steel & Tube Co. of America.

* * *

Wilson K. Ray has been appointed assistant chief of the iron and steel division, department of commerce, according to announcement just made. He succeeds Marshall T. Jones, who has been made chief of the electrical division of the department as stated in IRON TRADE REVIEW, March 24. Mr. Ray has been associated with the iron and steel division for the past six months. Mr. Ray, a native of Pittsburgh, was graduated from Princeton university in 1915 and was in the insurance business of his native city until 1917, when he entered

WILSON K. RAY

the army and was in France with the American expeditionary forces until 1919. He was engaged as a sales representative of iron and steel products, railway supplies, etc., from 1919 to 1923. He was appointed assistant trade commissioner of the department of commerce and assigned to Paris in August, 1923. He returned to the United States and was appointed special agent in the machinery division in December, 1925, where he remained until he was assigned to the iron and steel division.

* * *

Maj. Jarvis J. Bain, U. S. A., recently appointed United States engineer in charge of the Pittsburgh district, officially assumed his office April 26. Major Bain was born at Martinsville, Ind., 47 years ago, and was graduated from the United States Military academy at West Point in 1905. Major Bain has served as United States engineer in charge of

the Washington, Chattanooga and Nashville districts, in the Philippine Islands and in Cuba, and was secretary of the Mississippi river commission.

* * *

William H. Gaulke has resigned from the Western Metal Specialties Co., Milwaukee, to become chief engineer and general manager of a new steel products division of the Cream City Boiler Co., that city. The new division will manufacture automotive and industrial sheet metal parts.

* * *

Royal D. Malm has been appointed western district sales manager of the Lincoln Electric Co., Cleveland, with his headquarters in Chicago. Mr.

R. D. MALM

Malm is an engineering graduate from Case School of Applied Science, Cleveland, and since 1912 has been identified for four years in construction engineering, then with the Elyria Iron & Steel Co., and later with the Standard Welding division of the Standard Parts Corp. as general superintendent. For the past year Mr. Malm has been in charge of Lincoln sales in the automotive industries with offices at Detroit.

* * *

A. R. Amos has returned to the Geo. D. Whitcomb Co., Rochelle, Ill., and is working out of its New York office, under W. A. Smethurst. Mr. Amos formerly was attached to the Philadelphia office and now will have his headquarters in that city at 1014 Harrison building.

* * *

A. H. Elliot, recently elected a vice president of the Southern Wheel Co., with headquarters in New York, formerly was with the American Brake Shoe & Foundry Co., that city. The Southern Wheel Co. is a subsidiary of the American Brake organization.

* * *

Robert P. Lamont, president, American Steel Foundries Co., Chicago, has been elected to the board of directors of the United States chamber of commerce from the sixth district.

Stanley H. Bullard, vice president of the Bullard Machine Tool Works, Bridgeport, Conn., was elected a director from the first district.

* * *

James J. Campbell, auditor, assistant secretary and director of the Carnegie Steel Co., Pittsburgh, on May 2 was elected vice president and secretary, succeeding W. W. Blackburn. Mr. Campbell has been with the Carnegie company for 40 years.

Charles L. Wood, general manager of sales, was added to the directorate.

* * *

J. P. Alexander has been appointed Boston manager in charge of all sales and service in New England for Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Following graduation from Lafayette university in 1907 he joined the Westinghouse organization, holding various positions from apprentice course to his recent appointment.

George H. Cox, who is succeeded at Boston by Mr. Alexander, has been appointed sales manager at the South Philadelphia works of the Westinghouse company in charge of sales of all products manufactured there. Following 12 years of field electrical work, he joined the Westinghouse company in 1912.

* * *

W. J. Birmingham, president of the W. J. Birmingham Co., Cleveland, was elected president of the Cleveland Sheet Metal Employers' association recently. Other officers elected were: Ross Brewer, vice president; J. M. Saunders, secretary; and William F. Feiten, treasurer. George Thesmacher, A. L. Orkin and D. A. Buell were elected directors.

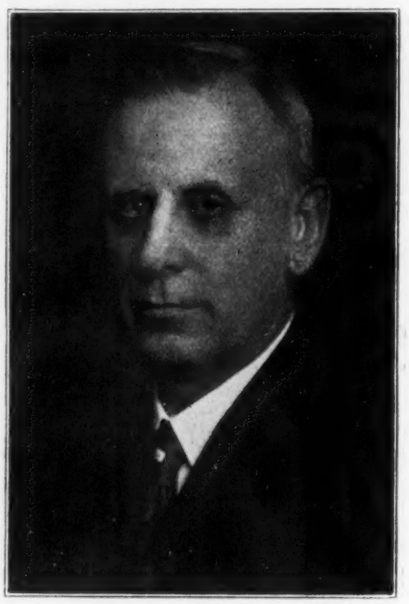
* * *

Gerard Swope, president of the General Electric Co., Schenectady, N. Y., was elected April 29, chairman of the board of the International General Electric Co., to succeed the late Anson W. Burchard. The International company is a subsidiary handling the foreign business of General Electric Co.

Dwight W. Morrow of J. P. Morgan & Co. and Victor M. Cutter, president of the United Fruit Co., directors of General Electric, were elected to the same capacity of the International company. Clark H. Minor was re-elected president of the International General Electric Co. E. F. Colyer was named comptroller.

* * *

J. H. Edwards, chosen vice president of the American Welding society at its recent meeting in New York, is assistant chief engineer of the American Bridge Co. at New York. He was born in Oxford, N. Y., in 1865, and was graduated from Cornell university in 1888 in civil engineering. While in college he was made a member of the Sigma Xi and Tau Beta Pi honorary engineer-



J. H. EDWARDS

ing societies, and upon graduating became affiliated with the engineering department of the Berlin Iron Bridge Co., East Berlin, Conn., serving for several years as chief engineer.

When this company was absorbed by the American Bridge Co. in 1900 he went to New York as a member of the engineering staff of the Bridge company, with which he has been affiliated since, specializing particularly in building construction. In addition to the American Iron and Steel institute, Mr. Edwards is a member of the American Society of Civil Engineers and the American Railroad Engineering association.

* * *

James E. Johns has joined the Bethlehem Steel Co., Bethlehem, Pa., at its Cleveland office. Mr. Johns will be identified with structural and plate sales in the Cleveland territory. Following graduation from University of Michigan, Ann Arbor, Mich., he

was for several years in the contracting business.

* * *

Jack R. Forcheimer, for many years engaged in the iron and steel scrap business in St. Louis territory, has opened an office in the Syndicate Trust building, that city and will operate as an independent dealer. For the past 14 years he was connected with the Harry Benjamin Equipment Co., and prior to that was with the Block-Pollock Iron Co. Mr. Forcheimer will specialize in material for steel mills.

* * *

H. C. Thomas has just been appointed assistant general manager of the merchandising department of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. He was graduated from Purdue university in 1910, immediately afterward entering the employ of the Westinghouse company.

On the creation of the merchandising department in 1922 he went to New York as assistant to manager of the department. In 1925, when merchandising headquarters was changed to Mansfield, O., Mr. Thomas moved his office and residence to that city, continuing in the same position until his present appointment.

Obituaries

JOHN CUNNINGHAM OLIVER, 64, died April 28 in the Union Memorial hospital, Baltimore. For years he was active in the iron and steel industry in Pittsburgh. In 1915 he retired as president of the Oliver Iron & Steel Co. and since that time had devoted himself to farming. Born in Pittsburgh, Oct. 29, 1863, Mr. Oliver was educated in the Pittsburgh public schools. He was prepared for college by a tutor and was graduated from the Sheffield Scientific school of Yale university in 1885. Mr. Oliver then went to work for the Oliver Iron & Steel Co., becoming president in 1905 and retaining that position until 1915 when he retired. He continued as a director in that company as well as in the Calumet & Arizona Mining Co. and the National Metal Molding Co. Mr. Oliver always took an active interest in civic affairs. For a long time he served as a member of select council of old Allegheny. He was a member of the Duquesne, Pittsburgh and Allegheny Country clubs, and the University club of New York.

* * *

Charles L. Heimbach, superintendent of the Standard Steel Car Co. plant at Hammond, Ind., died April 18 at Hammond.

* * *

George Gerry White, secretary of the Phoenix Iron Co., Philadelphia, and for 57 years affiliated with that organization, died April 26. He would have celebrated his eighty-eighth birthday in May.

* * *

Edgar Raysor, for the past 15 years fittings sales manager for Stanley G. Flagg & Co., Philadelphia, died at his home in that city, April 22, aged 66. He was with the Flagg company for 30 years.

* * *

Rufus R. Bolt, superintendent of the finishing mills, Abbott road plant of the Donner Steel Co., Buffalo, died April 27. Mr. Bolt joined the Donner organization three years ago, formerly having been with the United Alloy Steel Corp., Canton, O.

* * *

Andrew Wickey, whose death at 80 years was announced in the April 21 IRON TRADE REVIEW, was head of the Famous Mfg. Co., East Chicago, Ind., and not president of the Calumet Foundry & Machine Co., that city, as formerly stated.

* * *

LeRoy Clark, 55, mining engineer and former president of the Safety Cable Co., Boston, died recently at his home in Falmouth, Mass. Mr. Clark was a member of the American Institute of Electrical Engineers and of the board of governors of the National Electrical Manufacturers association.

* * *

Ferdinand Grimm, vice president of the Buffalo Wire Works Co. and president of the Buffalo Galvanizing & Tinning Works, Buffalo, died April 25 at his home there. He was born in Heimstetten, Germany, Feb. 7, 1866, and came to America when 18. He was in the hardware business in Erie for three years and then started with the Buffalo Wire Works Co., then known as Scheeler's Sons.

* * *

Eugene Panneton, 58, Montreal manufacturer, died in that city, April 26. He founded the Canada Stove & Foundry Co., of which he was general manager until it became merged with the Gurney Foundry Co., Toronto, Ont. He subsequently became managing director of the Beeby Thermos Ranges Ltd. and occupied this position at his death.

* * *

Nathan C. Esta, 67, inventor of card clothing machinery, and founder of the Leicester Card Co., Leicester, Mass., died at his home in Smithfield, R. I., recently.

* * *

Alfred Marshall, senior partner of Marshall Bros. & Co., Philadelphia, steel jobbers, died April 28 at his home in Panghorne, Pa., in his seventy-ninth year. He established a mill in Kensington, Philadelphia, in 1891, and produced there the first tin plate manufactured in the United States. This mill later was bought by the American Tin Plate Co. and ultimately was dismantled. He was president of the Juniata Furnace & Foundry Co. with a blast furnace at Newport, Pa., since dismantled. Mr. Marshall was a member of numerous clubs and took an active part in charitable work.

* *

John Z. Speer, 87, retired steel manufacturer of Pittsburgh, died May 1 in his home in that city. His whole life had been spent in Pittsburgh and he was one of the few men left who represented the "individualism" of the past business generation. Mr. Speer was born in Pittsburgh, Sept. 3, 1840. After being educated in the Pittsburgh schools, including the forerunner of the University of Pittsburgh, he started his business career as a warehouse clerk for Shoenberger & Co., makers of iron, in the early sixties, when the steamboat dominated shipments from Pittsburgh. In a few years, he became a partner and an associated blast furnace plant also bore his name—Shoenberger, Speer & Co. In the nineties the Shoenberger Steel Co. was formed, and he was the active administrative head of this organization up to its purchase by the American Steel & Wire Co. early in 1899, when he retired from active business. One of his four children is J. Ramsey Speer, president of Mackintosh-Hemphill Co., Pittsburgh.

Gaseous Reduction of Iron Ores Chief Topic of Electrochemists

POSSIBILITY of the success of various attempts at gaseous reduction of iron and other ores was discussed in considerable detail at the convention of the American Electrochemical society, held last week at the Benjamin Franklin hotel, Philadelphia. A feature of the meeting was the silver jubilee dinner, it being 25 years since the society was founded. This affair took place at the Old Mohican club on the Jersey shore of the Delaware river and an old-fashioned planked shad dinner was served. Dr. Edgar F. Smith presided and recounted early history of the development of electrochemistry. Other speakers were Wilder D. Bancroft, Louis Kahlenberg and Lawrence Addicks.

The subject of gaseous reduction of iron ores precipitated a discussion of present so-called "direct processes." Papers which were submitted to the meeting and the extemporaneous remarks indicated that gaseous reduction now is being successfully utilized as a method of eliminating certain impurities which abound in steels made from pig iron produced in the blast furnace.

It was pointed out that low temperature reduction by means of gas prevents the breaking down of the more stable oxides which are reduced by the high heats in the blast furnace. As a result, iron produced by gaseous reduction at low temperatures may be free of such impurities as manganese silica, etc. Various ways of eliminating impurities were discussed. For instance, no difficulty is had with sulphur for the reason that sulphur may be removed by passing hydrogen over the iron.

Eliminates Impurities

But the iron manufactured at low temperatures by gaseous reduction seems to be of practical commercial value only in connection with the manufacture of special steels. It is not possible with direct processes at the present time to compete against the blast furnace in the production of ordinary commercial steel. It is only when a high-grade steel is required, and when it is necessary to have base metal free of impurities so that the ultimate analysis may be accomplished with accuracy that the item of cost loses much of its importance. This point was emphasized by Dr. Bradley Stoughton, professor of metallurgy at Lehigh university. He made it plain that efforts to have direct process supplant the blast furnace all have failed up to the present time.

"The product resulting from gaseous reduction is poor commercially," said Dr. Stoughton. "It is of the same value as scrap of very poor quality. It is of about the same value as turnings. Like turnings, the sponge iron has to be melted and cast into ingots. Turnings now are worth about $7 a ton. That means that to make it worth while to produce sponge iron you have to be able to produce it at a cost no higher than $7.

J. Kent Smith, who is identified with the Hornsey-Wills direct process, now being employed in a commercial way by the National Tube Co., at Lorain, O., made no references to the direct method as contrasted with the blast furnace, but he emphatically disputed any implications that direct processes are without value. He stated that he had produced granular iron equal in quality to high grade pig iron and that he was making steel from this iron with great success. He expressed the hope that he eventually would be able to make public the results obtained. Mr. Kent Smith did not go into details about the cost of producing the granular iron.

H. K. Smith, Ford Motor Co., Detroit, made the plea that more data be published about the cost of production by the various direct processes, advancing the opinion that the cost is the principal consideration at this time. He commented on Dr. Stoughton's mention of the use of scrap, saying that industry cannot depend on scrap to any great extent as the basis of material supply.

"We found that in making windshields we could use scrap from plate glass store windows," said Mr. Smith. "But soon we found that there were not enough stores and not enough of this scrap available. The result is that we have our own glass plant which turns out new glass in a steady ribbon. In the same way, utilization of iron and steel scrap is important, but you also have got to have continued production of new material."

A paper by Heihachi Kamura set forth results obtained in gaseous reduction of iron ore at a plant in Japan. By the use of carbon monoxide a sponge iron is obtained which is practically free of objectional impurities. It was stated by one of the members who recently returned from Japan that this process is proving entirely successful and that it is used regularly to supply iron in tonnage for the open-hearth furnaces. In this process a thin layer of ore is placed on a rotary table and reduced by the carbon monoxide which is generated in a separate furnace. The sponge then is briquetted and melted in the open-hearth furnaces.

Describe European Processes

Percy Longmuir, of Sheffield, England, submitted a paper which was read in his absence. It described the Thomas Rowlands direct process, in which the ore is reduced by gas distilled from coal. The iron produced, he said, forms an excellent foundation material for the production of the highest class of straight carbon and alloy steels.

An interesting paper by Martin

See Ultimate Success, in Spite of Failures

DESPITE the failure of many attempts to introduce a commercially feasible direct process of making iron, many authorities foresee the day when success will crown these efforts. Bradley Stoughton, Lehigh university, expressed this belief as follows:

"Every year one to five new direct processes are brought out. They all fail. There is a big cemetery of such processes and it constantly is being enlarged. Of course, the present method of making steel by the roundabout way of first producing pig iron is far from ideal. But it is practical and any direct process that will supplant the blast furnace has got to be able to produce at costs comparable with scrap values before it can be accepted as practical. I believe that eventually there will be a successful process for producing steel direct from ore, but it certainly has not yet made its appearance."

Wilberg of Falun, Sweden, told of semicommercial tests in gaseous reduction of iron ore, using carbon monoxide with a little hydrogen as the reducing gas. These tests yielded high quality sponge iron, very low in sulphur and phosphorus.

A paper by Oliver Smalley and Frank Hodson set forth numerous details about two direct processes which permit the production of quality steels in one operation direct from ores and which are both, under certain conditions, commercially successful. Both of them originated in Europe. One is the Pehrson-Prentice process and the other the Carsil process. Mr. Hodson and Mr. Smalley also jointly presented a paper on the development of low temperature reduction of iron ore. This set forth the various processes that are in use or which appear to have promise.

Decides Iron Rates

Commission Acts in C. F. A. Pig Iron Tariff Adjustment

Washington, May 3.—Decision of the interstate commerce commission affecting pig iron freight rates in western New York, western Pennsylvania, northern and southern Ohio, Indiana, Illinois and Michigan is far-reaching. In some regards it is a victory for both the railroads and blast furnacemen. It helps out some pig iron producing districts and puts others back upon more nearly former bases.

At the formal hearing, at Chicago last December, furnacemen opposed a mileage rate system. The commission was asked to continue the system of groups of producing and destination points, and this the commission appears to have done. The new rates the carriers were to have named were to have gone into effect Nov. 1 but were suspended until March 1, and again suspended for three months.

Taking the rates from Cleveland and Toledo as typical, Cleveland now is given a rate to Indiana points 40 cents a ton higher than Toledo to the same points, whereas formerly Cleveland pig iron paid only 25 cents a ton more. Formerly and until January, 1926, Cleveland paid 63 cents a ton above Toledo. Then the Wheeling & Lake Erie railroad started the ball rolling by making a rate from Cleveland to Canton to match the Pennsylvania railroad's rate of $1.26 from Leetonia, O., to Canton, O. This brought down the whole pig iron rate structure in northern Ohio, Indiana and Michigan. The Leetonia-Canton rate of $1.26 a ton still is being considered by the Ohio public utilities commission.

Propose Radical Changes

Amalgamated Men Submit Wage Changes To Be Considered at Atlantic City, May 24

Cleveland, May 3.—Extraordinary demands in a new wage scale for 1927-8 will be presented to manufacturers by both the boiling and the sheet and tin mill divisions of the Amalgamated Association of Iron, Steel and Tin Workers at the conference to begin May 24 at Atlantic City, N. J.

Boilers, or puddlers, have formulated a wage scale that is the most radical presented in many years. It is a sharp departure from the present scale, in effect four years, in the rapid progression from base. In both scales the bar iron base is 1.00c calling for a wage of $7 for boiling per ton of 2240 pounds. But the similarity ends right there, as the following typical comparison shows:

	Old scale	New scale
1.00c Bar Iron	$7.00	$7.00
1.05c Bar Iron	7.15	7.35
1.10c Bar Iron	7.20	7.70
1.15c Bar Iron	7.30	8.05
1.20c Bar Iron	7.40	8.40

When, as in the last bi-monthly settlement, examination of sales sheets of typical mills develops an average price of 1.95c, the boiling rate will be $13.65. Besides, puddlers ask for $1.50 a ton extra for boiling during July, August and September. They ask further that puddle mills work only five days a week, that the muck roll crew be granted a wage advance of 10 per cent and that the muck roll crew be paid the same rate as millwrights while changing rolls. Busheling on cinder or sand bottom is to be paid for at the same rates as now, as also are piling on boards, knobbling, heating slabs and shingling. A 10 per cent wage advance is asked for the bar mill crew; that paddlers on bar mills be paid 35 per cent of the furnace and the run-down be paid 40 per cent of the furnace. Demand is made that a guarantee of at least $5 a day be given to bar mill roughers and catchers on two-high bar mills.

Beside demanding a wage advance of 10 per cent for the guide mill crew, the new scale asks:

"That the base price of a 1.00-cent card for rolling on guide and 10-inch mills shall be 55 cents per ton with extras and advances as provided by the sliding scale, the roller to pay no one but his finisher and night roller, the night roller to receive 80 per cent of the price for rolling and pay no one but his finisher."

Negotiations between sheet manufacturers and the Amalgamated association were conducted in Cleveland most of last week over the sheet mill demands. The meetings adjourned last Friday night without result. The sheet and tin mill workmen are dissatisfied with the present system of basing wages on the average sales prices of gages Nos. 26, 27 and 28. It long has been apparent that the bulk of the sheets now being produced on independent mills range between gages Nos. 20 and 22. At the recent Granite City convention of the Amalgamated association it was proposed that all gages from 21 to 30 be considered in the bi-monthly settlement. To carry out this departure, the following resolution was adopted by the convention:

"We recommend that the next conference of the sheet and tin division shall propose to the manufacturers that a sub-committee of both sides shall meet together for the purpose of securing information during the ensuing year and working out an equitable average base selling price of all gages from 21 to 30 inclusive, upon which the 60-day settlements shall be made.

"This proposition to again be presented to the next convention, and if agreeable to all the parties concerned, to go into effect on July 1, 1928."

Manganese Producers To Call Meeting

As an outgrowth of the manganese meeting of the American Mining and Metallurgical Engineers conducted at Cleveland, April 19-20, a voluntary committee of American producers of manganese ore was formed for the purpose of protecting and advancing the interests of domestic producers. The committee is as follows: J. Carson Adkerson, Woodstock, Va.; N. H. Mannakee, Bluefield, W. Va.; H. A. Pompelly, Oswego, N. Y.; J. H. Cole, Philipsburg, Mont.; and W. D. Meyering, city hall, Chicago. Both Mr. Adkerson and Mr. Mannakee are associated with the Hy-Grade Manganese Co. Inc., Woodstock, Va. A meeting is to be held at an early date to advance the interests of producers of manganese ore in America.

Shipments of fire extinguishing equipment in March totaled 123 pieces of motor apparatus and 48,450 pieces of hand type, compared with 87 motor and 46,539 hand types in February, according to reports of manufacturers to the department of commerce.

Machinery

April Business Proves a Disappointment as It Falls Well Below March Level—Inquiries Numerous But Hard to Close

FROM all angles, the machine tool situation is featureless, there being no outstanding sales or inquiries. With few exceptions, April business fell below that of March, although it probably ranks second. It is to be remembered that both January and February were months of light activity. May, thus far, has started out at the closing pace of April. The largest sale reported during the last week was the placing of 12 to 15 tools by the Baltimore & Ohio railroad. Studebaker Corp. has withdrawn for at least a year its recent inquiry for a number of tools for its experimental department. Railroad and automotive are light participants in current buying, numerous expected inquiries having failed to appear. Used tools continue in good demand.

New York, May 3.—Following placing of rather substantial orders this week, business in local machine tool market again is featureless. Orders are mostly for single tools and in no way can be described as numerous. At the same time, inquiry is showing little of promise. For most sellers the month now closing has been less active than in March and more or less of a disappointment. The Baltimore & Ohio has closed on at least 12 or 15 machine tools.

Boston, May 3.—April fell below expectations in tool sales in New England. Among Boston dealers total sales probably were 20 per cent below March sales. Tool manufacturers in the district continue to operate close to 60 per cent of capacity. One manufacturer of grinding machines has orders representing about 80 per cent of estimated production. Export demand is reported improved by two manufacturers. Prices are unchanged. Boston & Albany railroad is receiving bids on a list which includes a 5-foot radial drill. A textile machine manufacturer bought a centerless grinder and other equipment.

Pittsburgh, May 3.—April for the most part was a poor month from a machine tool selling standpoint. In a number of instances, however, sales aggregated as much as the average for the preceding three months. Last week was a fairly good one for several dealers although those sales did not make April reach the March total. Somers, Fiter & Todd received a portion of the Johnstown, Pa. board of education award, including a shaper, some lathes, a woodworking machine, and a saw; the 20-inch drill press going to the Brown & Zortman Machinery Co. This last dealer sold the Jones & Laughlin Steel Corp., a 11-pound steam hammer, and the latter's order for a 3-foot radial drill went to the Motch & Merryweather Machinery Co. Most sales, however, have been like those to W. K. Stamets, a 6-inch boring mill, a 20-inch slotter, a 24-inch shaper, a small drill press, and a hammer, going to five different manufacturers. Westinghouse Electric & Mfg. Co., bought a special machine but has not started on its large list. On the Baltimore & Ohio railroad list, recommendations have been sent to Baltimore and early buying action is expected.

Worcester, Mass., May 3.—A gradual improvement in the machine tool market continues with an improved inquiry for some heavier goods and plant equipment pending. Orders from the machine shop trade, while for the most part limited in size are satisfactory in volume. Textile machinery makers are well caught up with the demand for new machines and there has been some lull in these shops.

Chicago, May 3.—Sales of machine tools in individual items increased slightly during the week, and with some houses April business will run close to March. Other dealers report April business lagging far behind. Inquiries are quiet although several put out some time ago have become active again. It is stated definitely that Studebaker Corp. has withdrawn for a year its recent inquiry for a number of tools for its experimental department. Other expected automobile inquiry has not materialized. The report recently that Illinois Steel Co. had closed on its inquiry by buying used tools is reported erroneous and this concern expects to purchase some new tools shortly. Burlington is inquiring for a few special tools. Buyers seem reluctant to close on the fair volume of inquiry which has been outstanding for several months. Cream City Co., Milwaukee, is reorganizing its plant and installing a complete line of sheet metal working machinery.

Cleveland, May 3.—Equipment dealers and manufacturers in this territory continue to find business quiet, although inquiries come in fair volume. As these inquiries are worked toward the closing point, buyers show reluctance in committing themselves. For most dealers, April sales declined from those of March, but are better than the business in either January or February. Prompt deliveries can be made and customer's needs are satisfied with little delay, unless the equipment is of a special nature. Little business is coming from the automotive industry, except a tool here and there.

The National Association of Manufacturers will hold its annual convention in Chattanooga, Tenn., Oct. 24-26.

CRANE ORDERS PLACED

Five ditcher cranes for Southern railway, to American Hoist & Derrick Co.

Four transfer cranes, including two 1-ton, motor-driven, one 2-ton handpower and one 2-ton jib crane, for Tappan Stove Co., Mansfield, O., to H. D. Conkey & Co.

Three electric cranes, including two 5-ton and one 2-ton, for Grossman Bros. & Rosenbaum, New York, placed.

Two barge cranes for unnamed steamship interest in Detroit, reported awarded to McMyler-Interstate Co.

Two 10-ton electric overhead cranes for Chicago, Indianapolis & Louisville railroad, one to Harnischfeger Sales Corp., and one to Whiting Corp.

Two cranes, including one 10-ton and one 15-ton, for Dilworth, Porter & Co. Inc., Pittsburgh, to Harnischfeger Sales Corp.

Among single awards were: 10-ton crane for Columbia Steel Co., Butler, Pa., to Cleveland Crane & Engineering Co.; electric gantry crane for Dixie Construction Co., awarded through Shook & Fletcher, Birmingham, Ala., to Milwaukee Electric Crane & Mfg. Corp., this purchaser also is reported to have placed a 200-ton crane with another builder; 7-ton, 5-motor crane equipped with a 5-ton and 2-ton trolley, for Central Structural Steel Co., New York, Shepard Electric Crane & Hoist Co., reported last week as a 5-ton crane; 15-ton handpower crane also some monorail track and hoists for American Ringer Co., Woonsocket, R. I., to Power Iron Works; 30-ton barge crane for Edward E. Gillen Co., Milwaukee, to Orton Crane & Shovel Co.; 10-ton steam shovel for McMann Construction Co., Rochester, Ind., to Koehring Co., 7-ton gasoline crawler crane for Johnson Contracting Co., Waukegan, Ill., to Orton Crane & Shovel Co.; 5-ton roadwheel crane for city of Seattle, to Orton Crane & Shovel Co.; 1-yard gasoline caterpillar crane for Pacific Sand Co., Portage, Wis., to Orton Crane & Shovel Co.; 2-ton hoist for Crane Co., Oklahoma City, Okla., to Shepard Electric Crane & Hoist Co.; locomotive crane for American Steel Foundries, Chicago, reported awarded to Industrial Works; 5-ton handpower crane for Scully Steel & Iron Co., Chicago, to H. D. Conkey & Co.; 2-ton motor crane for Spuck Iron & Foundry Co., St. Louis, to H. D. Conkey & Co.; 2-ton motor crane for Vermont Marble Co., Proctor, Vt., to H. D. Conkey & Co.; 3-ton handpower crane for Russell & Erwin Co., St. Louis, to H. D. Conkey & Co.; 1½-ton motor crane for National Radiator Co., Johnstown, Pa., to H. D. Conkey & Co.; 1-ton motor crane for Seymour Mfg. Co., Seymour, Conn., to H. D. Conkey & Co.; transfer crane for Rockwood Corp., St. Louis, to H. D. Conkey & Co.; locomotive crane for Federal Cement Co., Buffalo, reported awarded to Ohio Locomotive Crane Co.

CRANE ORDERS PENDING

Seven or eight cranes for Austin Co., Cleveland, to be used in plant it is erecting for Burdsall, Russell & Ward Bolt & Nut Co., Coraopolis, Pa.

Three cranes including two 20-ton locomotive and 160-ton wrecker, for Chicago, Rock Island & Pacific railroad; pending.

Electric overhead crane for Wolverine Portland Cement Co., Detroit; reported in market.

Used locomotive crane for Chicago, Milwaukee & St. Paul railroad; reported inquiring.

British Output Continues High

Lower Prices, However, Fail To Stimulate New Demand—Continent Controls Pig Iron Export Market—Germans Pay Premiums for Welsh Scrap—South American Railroad Order Placed in Britain

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, May 3.—(*By Radio*)—Production of pig iron and steel in Great Britain continues high, but demand is quiet. Pig iron is weaker, except for Middlesbrough iron, but the lower prices are not stimulating orders. Continental pig iron makers are controlling the foreign market. Hematite is easier, production exceeding demand.

A Staffordshire firm has obtained a large order for steelwork for a South American railroad. Purchases of foreign steel by British users are subsiding. German consumers have purchased some scrap from Welsh interests at a higher price than British users are willing to pay. Small orders for sheets are being received from the customary world markets, except the Far East. Good orders for galvanized sheets are being received from India.

Current exports of French pig iron are fair; steel exports are scarce. A Lorraine mill has closed an order for 5000 tons of steel bars at £4 13s 9d ($22.78). Belgian markets are dull, except for pig iron. Berlin reports that tube exporters are threatening to boycott the tube syndicate if the latter continues to direct export business.

British Steel Prices Forced Down by Continent

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

BIRMINGHAM, Eng., April 22.—(*European Staff Service*).—Reduction of the bank rate from 5 per cent to 4½ was welcomed on the Birmingham exchange yesterday as an encouraging feature, and with the cheapening of money, industry should feel an immediate benefit, while it will help industrialists who are striving to make good losses caused by the prolonged coal stoppage last year.

The Midland trade outlook is not too bright as local factories are not working up to full capacity, but most representative industrialists are agreed that better days are coming. The coke difficulty is still the obstacle to business in the pig iron industry, but blast furnace men think they see a prospect of lower prices, although no definite move in this direction has been made. Pig iron can be bought on more favorable terms than last quarter, for while Derbyshire is still quoted at £4 2s 6d ($20.04) and Northampton at £4 ($19.44) these figures would be shaded for an attractive contract. Continental material is being imported at £3 10s ($17.01) per ton for Belgian pig iron, a matter of 10s ($2.43) below the local quotation. Foreign pig is competing in Middlesbrough with the local iron and also undercutting British iron on the Continent.

Sterling $4.86

A consignment of Indian pig iron has been landed at Glasgow and it is believed that considerable quantities have been ordered by Scottish buyers. It is mostly basic and the price is less than Scottish iron of the same grade. A quantity of Continental basic iron is also being imported by Scottish steelworks at about £3 16s ($18.46) delivered at the works. Demand for Continental material has fallen off following better deliveries

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, May 2	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON		£ s d		£ s d		£ s d		£ s d
Foundry No. 3, Silicon 2.50-3.00	$19.44	4 0 0*	$16.52	3 8 0	$16.52	3 8 0	$17.62	3 12 6
Basic	23.33	4 16 0	17.50	3 12 0	17.50	3 12 0	17.86	3 13 6
Basic-bessemer	21.26	4 7 6†	15.80	3 5 0	15.80	3 5 0	17.25	3 11 0
Hematite, Phosphorus 0.02-0.05	20.05	4 2 6	24.30	620*	.....	.....	20.41	4 4 0
SEMIFINISHED STEEL								
Billets	$32.81	6 15 0	$21.63	4 9 0	$21.63	4 9 0	$22.84	4 14 0
Wire rods	46.17	9 10 0	25.52	5 5 0	25.52	5 5 0	27.22	5 12 0
FINISHED STEEL								
Standard rails	$37.67	7 15 0	$30.38	6 5 0	$30.38	6 5 0	$30.38	6 5 0
Merchant bars	1.68c	7 15 0	1.03c	4 13 6	1.03c	4 13 6	1.10c	5 0 0
Structural shapes	1.46c	6 15 0	1.03c	4 13 6	1.03c	4 13 6	1.10c	5 0 0
Plates, ship, bridge and tank	1.68c	7 15 0	1.30c	5 18 6	1.30c	5 18 6	1.38c	6 5 0
Sheets, black, 24 gage	2.39c	11 0 0	2.09c	9 10 0	2.09c	9 10 0	2.86c	13 0 0
Sheets, galvanized, 24 gage, corrugated	3.26c	15 0 0	3.30c	15 0 0	4.23c	3,250*	3.74c	17 0 0
Bands and strips	2.28c	10 10 0	1.34c	6 2 0	1.34c	6 2 0	1.49c	6 15 0
Plain wire, base	2.12c	9 15 0	1.57c	7 2 6	1.57c	7 2 6	1.60c	7 5 0
Galvanized wire, base	3.04c	14 0 0	2.04c	9 5 0	2.04c	9 5 0	2.09c	9 10 0
Wire nails, base	2.50c	11 10 0	1.73c	7 17 6	1.73c	7 17 6	1.76c	8 0 0
Tin plate, base box 108 pounds	$ 4.74	0 19 6	.....	.....	.....	.....	$ 6.80	1 8 0
*Francs								
Domestic Prices at Works or Furnace—Last Reported			Francs		Francs		Marks	
Foundry No. 3 Pig Iron, Silicon 2.50—3.00	$19.44	4 0 0	$19.60	500(2)	$18.77	675	$19.78	86
Basic pig iron	23.33	4 16 0	20.97	535(1)	19.04	685	20.24	88
Furnace coke	5.83	1 4 0	7.45	190	6.12	220	4.95	21.50
Billets	32.81	6 15 0	20.78	530	22.52	810	25.88	112.50
Standard rails	1.74c	8 0 0	1.51c	840	1.30c	1,000	1.46c	140
Merchant bars	1.87c	8 10 0	1.13c	625	1.18c	910	1.40c	134
Shapes	1.68c	7 15 0	1.05c	585	1.20c	920	1.37c	131
Plates, ship, bridge and tank	1.87c	8 12 6	1.31c	730	1.46c	1,120	1.55c	149
Sheets, black, 24 gage	2.50c	11 10 0	2.52c	1,400	2.47c	1,900	2.39c	220
Sheets, galvanized 24 gage, corrugated	3.31c	15 5 0	3.33c	1,850	4.23c	3,250	3.65c	350
Plain wire	2.12c	9 15 0	2.66c	1,480	2.15c	1,650	2.03c	195
Bands and Strips	2.28c	10 10 0	1.40c	775	1.30c	1,000	1.61c	154

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longway. British export furnace coke £1 3s 0d ($5.59) f. o. b. Ferromanganese £20 8s 6d ($100) delivered Atlantic seaboard, duty paid. German ferromanganese £15 0s 0d ($72.90) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel. French, Belgian, Luxemburg, and German are for basic-bessemer steel.

from British mills. The Continental price is still an advantage—as much as £1 5s ($6.07) in some cases, but users prefer British material on account of quality. Continental prices are steadily falling, foreign billets being about £5 8s ($26.24), steel bars £5 17s 6d ($28.54) and iron bars at the same figure.

Makers of Staffordshire wrought iron are severely handicapped by the keen competition of Continental wrought iron which is something like £4 ($19.44) cheaper than the local manufacturer can afford to charge. The nut and bolt trade continues to absorb large quantities of Belgian No. 3 iron. Staffordshire marked bars are maintained at £14 10s ($70.47) crown bars are quoted £11 ($53.46) in Lancashire, with an addition of 5s ($1.21) to 7s 6d ($1.81) for delivery in Birmingham.

The shipbuilding industry is making good progress now that better supplies of British steel are available. Out of 645 ships under construction 297 of 1,216,932 tons are in British yards. The new construction in hand at the end of the first quarter was 456,848 tons more than at the beginning in the case of British yards. Meanwhile the increase in other shipyards of the world was 180,000 tons.

Galvanized sheets are easier at £15 ($72.90) to £15 5s for No. 24 gage corrugated ($74.11). The easier price has resulted in some sales to the West Indies. Resumption of work has only been partial as the opportunity has been taken to effect repairs at a number of idle mills. The foreign sheet bar is being used to a large extent in South Wales owing to the difference of £1 5s ($6.07) to £1 7s ($6.55) between English and Continental steel. The Welsh tin plate maker contends that profit making is only possible by using Continental steel. The tin plate trade has remained quiet over the holiday and it is expected that output will be curtailed the next few weeks by the pooling scheme. Prices range between 19s 6d ($4.74) and 19s 9d ($4.80) per basis box, I. C. f.o.b. works port. In one of two instances, however, sellers are holding out for £1 ($4.86), and state they would rather close than sell under this figure. Export markets remain quiet.

Steel scrap is in poor demand and prices are easier. As usual in these circumstances, the foreigner has come into the market and considerable parcels have been sold to Germany.

British Exports Move Toward Normal

Birmingham, Eng., April 24.—(*European Staff Service*)—The British board of trade return for March shows a total export of iron and steel products, including scrap, of 361,364 tons, compared with 258,629 tons in February and 411,579 tons in March, 1926.

Imports, including scrap, totaled 491,071 tons, compared with 457,522 tons in February and 289,961 in March, 1926.

In exports a slight recovery is noticeable in forge and foundry iron, which totaled 11,863 tons, although this is only about a quarter of the total exported in the corresponding month of last year. It is a considerable improvement, however, on the February total of 4865 tons. The United States took 3000 tons of pig iron, compared with 23,502 in March last year, while 1822 tons of ferroalloys were bought by the same country, against 485 tons a year ago.

Steel exports are gradually expanding and notable increases for the month are recorded in bars, rods, angles, steel girders, plates and galvanized sheets. The March total of galvanized sheets was 66,991 tons, compared with 48,925 tons in February and 78,118 tons in March, 1926. Steel rails increased by 10,000 tons and tin plates by about 8000.

Heavy importation of pig iron continues, but March figures show a slight decrease compared with February. Imports of foundry iron totaled 25,752 tons, compared with 26,258 tons in February. The import of basic iron was remarkably heavy, no less than 42,521 tons coming to this country in March, compared with 21,887 tons in February. Steel ingots increased from 6060 tons in February to 11,836 tons in March. A slight falling off is noticeable in steel billets and bars, but wire rods increased by about 3000 tons and other descriptions of steel by about 5000 tons.

General exports were valued at £62,114,146, compared with £52,937,400 in February, and £66,399,647 in March last year.

The value of the general imports was £113,524,377, compared with £106,869,216 in March, 1926, and £93,851,869 in February.

French Steelmakers Lack Orders

Office of IRON TRADE REVIEW,
9 Rue de Londres

PARIS, April 21.—(*European Staff Service*).—The situation in France remains almost stationary and the economic depression continues. French industries are experiencing a serious crisis marked by absence of orders. This crisis was felt from November to February; it was caused by fears on the part of consumers, business men and industrialists brought about by the uncertain results of a policy of restriction and stabilization. At the beginning of spring there was a revival of demand, caused by needs and jobbers whose stocks were depleted; however, this was only a spurt and since the end of March there have been only enough orders to keep furnaces and rolling mills moderately occupied. Certain observers believe the present situation will last, but it is difficult to make definite forecasts. For the time being it is apparent that conditions here are not quite stable; in addition, events in the Far East are disorganizing export markets. It should also be remembered that much buying was done in 1926, due to depreciation of the franc, and some markets may be saturated.

In the domestic market agricultural interests are not buying. The drop in prices announced by colliery owners causes consumers to believe that iron and steel prices also will drop, and they now refrain from buying. Generally, the French now tend to regain their prewar attitude of mind. Each one hopes that conditions will stabilize and that business may be transacted as in 1914, when price fluctuations were small and one could order over long periods; this would enable steel producers to schedule operations and work regularly. The new tariff now before the Chamber of deputies will help to recover stability, but there is a great deal of opposition from agricultural interests, who consider that industry is too protected in comparison with themselves.

Negotiations with the German coal syndicate concerning the price of coke have brought no result, so pig iron prices are unchanged, foundry pig iron, 2.5 to 3 per cent, remaining at 500 francs ($19.60) per metric ton. The hematite department is stagnant. There is little business in the semi-finished steel market, but prices are maintained. Basic bessemer blooms range from 500 to 510 francs ($19.60 to $20) and billets from 540 to 550 francs ($21.15 to $21.55) at the mill in Lorraine. Business is more active for open-hearth steel and there is a regular current of orders. Orders for beams quoted at 560 to 570 francs ($21.95 to $22.35), are scarce. There is a possibility that a comptoir may be formed for beams, not so much to regulate prices as to develop sales, owing to competition from the use of reinforced concrete. Sales of beams have seriously declined in past years and this act is causing anxiety to mills in the east and north of France. Structural steel ranges from 590 to 600 francs ($23.10 to $23.50) and small shapes from 620 to 630 francs ($24.30 to $24.70); business in this department is dull. Wire rod producers have decided to maintain in May the price of 750 francs ($29.40) per ton which was fixed for April. In plates and sheets the extras recently fixed and which originally were multiplied by four now are multiplied by three. The base prices are 740 to 750 francs ($29 to $29.40) for 5-millimeter plates, 790 to 810 francs ($30.95 to $31.75) for 2-millimeter sheets and 1000 to 1030 francs ($39.20 to $40.35) for the fine sizes. Demand for tin plate is not so good as last year; canners have not yet sold their output and stocks are heavy, with the result that tin plate prices are sharply discussed. The naval department has been authorized to lay a number of vessels between July 1, 1927 and June 30, 1928; steel will be needed for 1 cruiser, 6 torpedo-destroyers, 6 submarines and 2 units for distant campaigns.

Foundrymen Arrange Program

American Foundrymen's Association Schedules Sessions for Thirty-first Annual Convention in Chicago, June 6-10

Many Important Technical Papers Are Listed for Presentation Before Iron, Steel, Malleable and Nonferrous Groups

A MOST comprehensive schedule of sessions has been worked for the convention of the American Foundrymen's association which is to be held at the Edgewater Beach hotel, Chicago, June 6-10. Meetings have been so distributed over the three days of technical sessions that the foundryman who is interested in more than one topic will be able to join with groups discussing these subjects.

Monday, June 6 will be devoted to registration, committee meetings and plant visitation. Simultaneous technical sessions will be held both morning and afternoon on Tuesday and Wednesday and Thursday morning. Friday has been reserved for plant visitations. To promote acquaintance, breakfast gatherings are scheduled for Tuesday, Wednesday and Thursday mornings. Among the entertainment features will be a special program on Tuesday evening, the banquet on Wednesday evening and a boat ride Thursday afternoon.

The schedule of sessions for the week is as follows:

Monday, June 6

Registration.
Plant visitation.
Committee meetings.
6:30 a. m.—Conference of instructors of foundry practice.

Tuesday, June 7

8:00 a. m.—Breakfast gatherings.
9:30 a. m.—General opening meeting.
10:15 a. m.—Apprentice training.
10:15 a. m.—General foundry practice.
2:00 p. m.—Foundry costs.
2:00 p. m.—Conference on qualities of pig iron for casting purposes.
Evening devoted to entertainment feature. Exact time to be announced later

Wednesday, June 8

8:00 a. m.—Breakfast gatherings.
10:00 a. m.—Foundry sand control.
12:15 p. m.—Round table on nonferrous foundry problems.
1:30 p. m.—Cast iron metallurgy.
1:30 p. m.—Malleable foundry sand control.
1:30 p. m.—Steel founding.
4:00 p. m.—Business meeting.
6:30 p. m.—Banquet.

Thursday, June 9

8:00 a. m.—Breakfast gatherings.
10:00 a. m.—Gray iron shop problems.
10:00 a. m.—Malleable shop practice.
10:00 a. m.—Nonferrous founding.
Boat trip. Exact time to be announced later.

Friday, June 10

The day will be devoted to plant visitations.

A wealth of technical information will be afforded by the papers which have been arranged for the various sessions. Featuring these group meetings will be the exchange papers of the Institute of British Foundrymen, French Foundry Technical association and Belgian Foundry Technical association. Papers which will be presented at the sessions are as follows:

Tuesday, June 7

MORNING

Apprentice Training

"Upgrading Foundry Apprentices," by C. Howard Ross, general manager, Union Malleable Iron Co., East Moline, Ill.

"Training Apprentices," by A. W. Gregg, Bucyrus Co., South Milwaukee, Wis.

General Foundry Practice

"Specifications for Miscellaneous Foundry Materials," by V. A. Crosby, metallurgist, Studebaker Corp., South Bend, Ind.

"Application of Metallurgical Principles to Foundry Practice," by J. H. Andrews, Royal Technical college, Glasgow, Scotland. Exchange paper of Institute of British Foundrymen.

"Plumbago Blackings as Applied to Foundry Work," by A. N. Ogden, Western Electric Co., Chicago.

AFTERNOON

Foundry Costs

"Qualities of Pig Iron for Casting Purposes"—a conference. To be discussed by R. S. MacPherran, Allis-Chalmers Mfg. Co., Milwaukee; Dr. Richard Moldenke, Watchung, N. J.; David McLain, Milwaukee; J. T. MacKenzie, American Cast Iron Pipe Co., Birmingham, Ala.; J. W. Bolton, Lunkenheimer Co., Cincinnati; and E. J. Lowry, Hickman, Williams & Co., Chicago.

Wednesday, June 8

MORNING

Foundry Sand Control

"Some Practical Results of Sand Control," by M. Kuniansky, Lynchburg Foundry Co., Lynchburg, Va.

Report of committee on grading foundry sand, by Chairman A. A. Grubb, Ohio Brass Co., Mansfield, O.

Report of committee on testing foundry sands, by Chairman H. Reis, Cornell university, Ithaca, N. Y.

"Effect of Moisture Absorption on the Properties of Cores," by H. L. Campbell, Ann Arbor, Mich.

Brass Foundry Problems

This meeting will take the form of a round table conference and will be followed by a luncheon gathering of those interested in brass founding.

AFTERNOON

Cast Iron Metallurgy

"The Coulibility Bar," by C. Curry, Ardennes, France. Exchange paper of French Technical association.

"Some Graphite Formations in Cast Iron," by J. A. Bolton, Lunkenheimer Co., Cincinnati.

"Fatigue of Cast Iron," by H. F. Moore and S. W. Lyon, University of Illinois, Urbana, Ill.

"Effect of Nickel and Chromium in Cast Iron," by R. S. Poister, Electro-Metallurgical Sales Corp., New York.

Malleable Foundry Sand Control

"Synthetic Sands in the Malleable Foundry," by F. C. Scheiber, General Electric Co., Erie, Pa.

Discussion leaders: H. B. Hanley, Whitehead Bros. Co., Rochester, N. Y., and H. W. Dietert, United States Radiator Co., Detroit.

Steel Founding

"A Development in Ovens for Mold Drying," by J. M. Sampson and G. H. Wright, General Electric Co., Schenectady, N. Y.

"Characteristics of Some Steel Molding and Core Materials," by E. R. Young, Detroit Steel Casting Co., Detroit.

Report of A. F. A. committee on steel casting, by chairman A. H. Jameson, Deemer Steel Castings Co., New Castle, Del.

Report of A. F. A. representative on committee investigation of effect of sulphur and phosphorus in steel, by R. A. Bull, Chicago.

Report of committee on heat treatment of ferrous metals, by Chairman A. H. Lorenz, Bucyrus Co., Milwaukee.

Thursday, June 9

MORNING

Gray Iron Shop Problems

"Analysis of 400 Tons of Defective Castings," by J. M. Haley, Crompton & Knowles Loom Works, Worcester, Mass.

"Study of Chapleting," by M. Varlet, Sclession, Belgium. Exchange paper of Belgian Foundry Technical association.

"Temperature Measurements of Cupola Iron," by H. W. Dietert, United States Radiator Co., Detroit.

Nonferrous Founding

"Reduction of Molding Losses," by R. A. Greene, Ohio Brass Co., Mansfield, O.

"Aluminum Bronze Castings," by W. M. Corse, Aluminum Bronze Manufacturers' institute, Washington.

"Gating Brass Castings"—a conference on various methods of gating.

Malleable Foundry Problems

No program announced.

Study Electric Heating

The General Electric Co. conducted its sixth industrial heating course at Schenectady, N. Y., April 18-30, some 40 representatives of various central stations throughout the country attending. These courses are given under the auspices of the National Electric Light association, the object being to acquaint central stations with the possibilities of the industrial electric heating load, the field of application and the equipment available. Meetings were held both at the Schenectady and Pittsfield, Mass., plants and an extensive course of lectures was carried on daily. Inspection trips were taken to installations at Springfield, Worcester, Lynn, Beverly and Salem, Mass.; Rochester, N. Y.; and Erie, Pa.

Bituminous coal mines in this country in 1925 used an average of 323 pounds of all grades of explosives for each thousand tons of coal produced.

Metal Trades Position Sound

National Association Reports Good Business and Labor Relations; Substantial Increase in Membership—Three Speakers From Washington —Industrial Policies Discussed at Convention

GOOD business conditions and good prospects over the next six months, and especially good labor conditions were reported for the National Metal Trades association at its twenty-ninth annual convention in Detroit, April 26.

"Viewing with alarm" came wholly from outside the association. A federal trade commissioner, one of the speakers, warned that unless industry gives whole-hearted support to antitrust laws, and, by inference, to the trade commission, more drastic legislation and more exacting "bureaus and bureaucrats" are certain to be established.

The industrial relations adviser of the Associated Industries of Massachusetts gave warning of the subtle socialistic peril in pension plans which are being adopted in good faith by employers but which are insufficient to fulfill their purpose. Failure may mean the forcing of legislation providing funds, and employers and state may be saddled with large tax!

A brigadier general, assistant chief of ordnance, gave the steel industry credit for aiding in simplifying and reducing cost of manufacture of war material and outlined the proposed blanket form of contract which in the case of war emergency might be employed.

A representative of the federal board of vocational education, Washington, described the board's cooperative efforts with state agencies and industries for the training of foremen.

It was in Detroit 26 years ago, at the third annual convention, that the association endorsel the open shop plan of employment and adopted its declaration of principles. There are now 31 local branches of the association. A net gain of 23 members in the past year has brought membership to 1025 firms. The total number of operatives reported by the new members exceeds the total number reported by those lost to the association by 9518.

Agree on Antitrust Law Principles

MEETING of the association in the "Fourth city," where the American Federation of Labor is attempting to organize the automotive industry was significant. In contrast with the association's gain in membership, the loss sustained by the federation and especially by the machinists union was cited.

"That the federation should choose to organize the automobile industry where wages are high, working conditions eminently satisfactory, and hours reasonably short, indicates the chief interest of the officials is not so much to improve conditions of workmen as it is in recovery of great membership loss," said Paul T. Norton, Case Crane & Engineering Co., Columbus, president of the association.

"These losses in the American Federation of Labor show a decrease from 4,078,740 in 1920 to 2,813,910 in 1926, a reduction of 1,264,830. In the machinists' union where this effort finds fullest expression, the loss has reached 89 per cent, or the difference between 300,400 in 1920 and about 60,000 due-paying members in 1926."

He said the antitrust laws which organized labor is trying to have repealed or modified are industry's strongest safeguards against intimidations by such labor. This was in substantial agreement with a later statement by a federal trade commissioner, as to the benefit to industry of antitrust laws.

"Just how satisfactory labor conditions are in our member plants may be judged from the statement that no strikes occurred during 1925; that during 1926 only one disturbance took place which affected three of our members, and that in the past five years a total of only nine strikes is recorded."

He urged that "Every dollar spent should be turned into channels which will promote the spread of the open shop plan of employment."

He reviewed the general work of the association in educational fields, and also presented the results of the latest business survey among members. Of 442 replies to a recent questionnaire, 46 per cent stated business is good or excellent; 43 that business is fair and only 10 per cent "poor."

Another question was: "What is the outlook for the next six months?" Twenty-one replied "excellent;" 175 "good;" 169 "fair" and only 11 "poor."

As to available labor: 292 reported no shortage; 65 reported scarcity of skilled tool and diemakers; 25 scarcity of all-round machinists, while 37 reported a scarcity of miscellaneous skilled craftsmen.

The appearance of Abram F. Myers, federal trade commissioner, as a speaker in defense of the commission was of particular interest in view of the Supreme Court's recent action affecting the commission.

"In resisting the exercise of this power (of the government through the commission) business men proceed on the mistaken assumption that results will be wholly detrimental to their interests," he said. "The fact is that upon the sustaining of this power depends the ability of the government to enact wise measures founded upon facts of business, and not based wholly on considerations of politics and expediency.

"Those in favor of private business and opposed to the conduct of business generally by the government—socialism—logically should be the strongest defenders of the competitive principle.

"It may well be that the alternative to existing regulations is not less regulation but more regulation; that abolishment of existing bureaus will result in the creation of more bureaus and bureaucrats."

Brig. Gen. Colden L'H. Ruggles, assistant chief of ordnance, United States army, described in detail the form of contracts it is proposed manufacturers sign with the government to mobolize their plants in event of

war. He explained that leading steel manufacturers now are co-operating with the war department in simplifying processes of manufacture of shell forgings and artillery. Progress has been notable especially in the making of shells direct from seamless steel tubing, as suggested by a leading manufacturer.

"Capacity of steel mills for producing seamless steel tubing is so great that we feel confident they will be able to fill our war requirements for shell forgings without undue strain and without detriment to war demands of other government agencies and necessities of the noncombatant population," he said.

"There is a large amount of machinery in the country available for production of shell forgings by the method under investigation at the Frankford arsenal (a drawing process). Both methods are very economical in consumption of steel; the forgings are clean and have excellent physical qualities.

"When shells are made by these methods not only can they be obtained more rapidly than during the World war, but there should be no necessity of erecting special facilities for forging or machining.

Conference Economist Voices Confidence

PROSPECTS of a continuance of the general prosperity the country has enjoyed during the past two years "is exceptionally and surprisingly good." This was the message brought to the convention by Virgil Jordan, chief economist, National Industrial Conference board, New York. He said that personally he could not see anything this side of the summer or the fall of 1928 warranting apprehension of a letdown.

"The so-called business cycle is a bogey which a grown-up business world should and can get over being afraid of," he stated. "The business cycle is a product of the superstitution and fear of economic spooks which is excusable only in a primitive business world. Business cycles are man made; they are not the inevitable visitations of some fatalistic economic destiny. They are the result merely of stupidity and ignorance and above all of lack of faith in the future.

"The tremendous development and astonishing level of prosperity of the past two years is not the result of a benevolent government, of a high tariff, of well behaved labor unions, of high wages, or of short hours or any other panacea that may be proudly pointed to by politicians or labor leaders. It can be explained only by an unexampled display of faith in preparing for the prosperity of the future and intelligence in meeting the problems of the present on the part of business leaders of this country. And more than any other group of them, the builders of the automobile industry deserve the chief credit for this accomplishment. The automobile industry more than any other single factor has been the cause of our post-war prosperity.

"We are coming to realize that prosperity is governed by a new economic law which has so far not been appreciated. It is that business can never stand still, it must expand and grow or decline and wither. American business, therefore, is faced with this fact, which is at once a reassurance and a challenge: We can preserve our present prosperity only by preparing confidently and intelligently for the prosperity of the future."

Proposed employe pension plans received considerable attention. The association has not gone on record either for or against pensions, but advises caution and study. The committee on industrial relations, of which Jacob D. Cox Jr., Cleveland Twist Drill Co., is chairman, recently completed an investigation of various plans. Some of the committees conclusions are as follows:

IT IS literally true we Americans do not ride in automobiles because we are prosperous, but we are prosperous because we ride in automobiles."—VIRGIL JORDAN, *chief economist, National Industrial Conference board.*

"No pension plan should be entered into recklessly and without careful study, nor without providing for sound accounting methods, and obtaining advice from competent consulting actuaries.

"Private pension plans financed on an actuarially sound and mathematically correct reserve fund system, that gives the employe complete assurance that payments will be met, are in harmony with the high ideals of working conditions prevalent in member shops of the National Metal Trades association. Such plans are especially appealing to the employers who wish to provide for old and faithful employes. Such plans will probably tend to reduce labor turnover and lessen the demand for state operated pension funds, which in the opinion of this committee, are undesirable.

"In small and medium sized plants employers generally would probably be well advised to delegate the difficult and perplexing problems of operating a pension fund to one of the various insurance companies that already have the organization, experience, and established accounting methods, which are necessary for the operation of a sound plan."

Some details of the committee's pension report were discussed by W. E. Odom, director of the association's department of industrial relations.

A warning against ill-advised plans and plans insufficient for their purpose was sounded by E. G. Plowman, industrial relations adviser, Associated Industries of Massachusetts. He said that industry faces a serious problem; if it should undertake to pension employes, and fail to provide adequately for them, it would be playing into the hands of politicians and socialists who might be in position to force legislation providing pensions of the gift type, with heavy taxes on employers and state.

C. F. Klinefelter, representing the federal board for vocational education, explained how the board is cooperating with state groups and manufacturers in foremanship training.

The annual banquet was featured with an address by Charles A. Eaton, president, National Educational association on "Industry's Place in Modern Life."

Present officers continue for another year, election being every two years. William Goodman, vice president, Worthington Pump & Machinery Corp., was scheduled to succeed J. G. Benedict, Landis Machine Co., as second vice president of the association, but owing to the recent death of Mr. Goodman, Mr. Benedict will continue in the office.

Six councilors for two years were elected as follows: E. C. Heidrich Jr., president, Peoria Cordage Co., Peoria, Ill.; W. Ledyard Mitchell, vice president, Chrysler Motor Car Co., Detroit; E. A. Muller, president, King Machine Tool Co., Cincinnati; Edwin P. Root, president, New Haven Clock Co., New Haven, Conn.; J. A. Sheldon, general manager, Willys Overland Co., Toledo, O.; and Ralph E. Thompson, vice president, Gillette Safety Razor Co., Boston.

Current Statistics of Industry

Output of Steel Barrels Increases in March

Washington, May 2.—Production of steel barrels in March totaled 575,850 pieces, according to reports of 28 companies to the department of commerce. Shipments and unfilled orders for delivery within 30 days gained over February, but extended unfilled orders decreased. Operations of members of the Steel Barrel Manufacturers' association were at 50.4 per cent in March, 26 per cent capacity of I. C. C. barrels and 57.6 per cent of light barrels being occupied. The total volume of March business was valued at $1,142,003, for shipments of 356,453 barrels. Members reported total unfilled orders on April 1 of 981,690 barrels. Comparisons in the following table are based on department of commerce reports.

	Production	Shipments	Unfilled orders for delivery within 30 days	Unfilled orders for delivery beyond 30 days
1926				
January	**468,722**	**469,432**	**431,772**	**1,334,074**
February	**522,486**	**518,104**	**543,881**	**1,153,947**
March	**622,949**	**622,312**	**369,576**	**1,275,490**
April	**602,058**	**608,056**	**414,367**	**864,792**
May	**581,962**	**582,852**	**417,718**	**792,097**
June	**626,812**	**624,082**	**407,184**	**892,929**
July	**585,734**	**593,611**	**386,536**	**907,065**
August	**528,037**	**511,542**	**368,578**	**802,420**
September	**511,118**	**508,548**	**286,160**	**1,002,271**
October	**493,363**	**497,031**	**222,491**	**926,834**
November	**510,489**	**505,383**	**332,106**	**1,399,901**
December	**539,805**	**546,392**	**349,491**	**1,496,496**
1927				
January	**529,137**	**525,518**	**244,108**	**1,544,086**
February	**504,134**	**503,183**	**252,012**	**1,411,760**
March	**575,850**	**568,821**	**285,702**	**1,260,278**

Fabricated Steel Plate Bookings Heavy

Washington, May 3.—Bookings of fabricated steel plates in March totaled 52,819 tons, compared with 57,060 tons in February and 39,764 tons in March, 1926, according to reports of 45 manufacturers to the department of commerce. March bookings were 71 per cent of capacity compared with 76 per cent in February. All classifications showed slight increases except oil storage tanks, which dropped 8856 tons from February to March. Following are further comparisons:

	Total	Oil storage tanks	Gas holders	Blast furnaces	Stocks and miscellaneous
1923 total	559,799	303,416	44,576	9,815	149,033
1924 total	329,231	124,959	43,747	12,601	119,715
1925 total	367,114	99,134	36,621	12,651	154,186
1926					
March	**39,764**	**12,693**	**5,048**	**377**	**15,163**
Total (3 mos.)	104,789	31,193	11,402	2,903	41,522
April	**36,133**	**6,390**	**5,261**	**1,857**	**19,627**
May	**49,971**	**16,243**	**4,190**	**1,742**	**22,312**
June	**41,695**	**11,114**	**8,282**	**1,123**	**17,627**
July	**34,213**	**12,827**	**1,716**	**989**	**15,539**
Aug.	**48,138**	**21,723**	**1,240**	**1,728**	**15,133**
Sept.	**35,589**	**17,038**	**871**	**861**	**10,873**
Oct.	**42,007**	**23,094**	**744**	**994**	**12,341**
Nov.	**60,367**	**26,269**	**3,851**	**418**	**9,754**
Dec.	**27,244**	**9,476**	**1,467**	**1,791**	**10,848**
Total (year)	480,146	175,367	39,024	14,406	175,576
1927					
Jan.	34,068	14,336	1,676	568	8,841
Feb.	57,060	32,983	2,783	606	15,095
March	52,819	24,127	5,597	857	16,243
Total (3 mos.)	143,947	71,446	9,056	2,031	40,179

Malleable Castings Sales Decrease in March

Washington, May 3.—Orders for malleable castings received in March totaled 53,597 tons, compared with 58,039 tons in February and 58,804 tons in March, 1926, according to reports of 134 plants to the department of commerce. Shipments in March, at 66,372 tons, were the heaviest since April. March operations were at 62.2 per cent of capacity, compared with 54.8 per cent in February. Further monthly comparisons follow:

1925	Total tons produced	Per cent of capacity	Total tons booked	Monthly capacity
Total 1925	737,532	54.4	653,233	1,355,315
1926				
March	74,520	67.4	70,193	110,539
Total (3 mos.)	216,579	65.2	182,921	332,258
April	66,733	60.4	52,649	110,415
May	60,128	55.2	49,179	**108,891
June	61,023	55.3	45,548	**110,228
July	55,555	51.1	55,766	**108,655
August	57,541	52.7	48,922	**109,161
September	58,376	53.7	47,130	**108,627
October	57,175	52.6	45,490	**108,638
November	45,793	42.7	40,294	**107,185
December	50,017	48.2	40,051	103,831
Total 1926	728,930	55.7	607,949	1,307,889
1927				
January	*51,492	48.8	50,994	105,619
February	*57,380	54.8	58,039	104,686
March	66,372	62.2	53,597	106,698
Total (3 mos.)	175,244	55.3	162,630	317,003

*Revised.

**Capacity since May has been based on following formula: "Total number of units of molding floor space, times average production per molder per day per unit of floor space times number of actual working days per month."

Announces Program for New Haven Show

The first national meeting of the machine shop practice division of the American Society of Mechanical Engineers is to be held at New Haven, Conn., Sept. 6-9, in connection with the seventh annual New Haven machine tool exhibition, it has just been announced. This year the technical program is entirely in the hands of the mechanical engineers. It is expected that the sessions will be conducted on the mornings of Sept. 7, 8 and 9, inasmuch as the exhibition will be closed during the morning hours.

On Wednesday morning the session will be devoted to the consideration and selection of machine tool equipment; on Thursday parallel sessions will consider finishing machine tools and other mechanical equipment for looks and durability at reasonable cost and in as short a time as possible and foremanship training; and on Friday simultaneous sessions will discuss cold working of metals and other antifriction bearings.

Among the technical papers which have been scheduled are the following:

"Economics of Machine Tool Replacement," by Myron Curtis, chief engineer, Potter & Johnson Machine Co., Pawtucket, R. I.

"Advantages of Up-to-date Machine Equipment," by L. C. Morow, managing editor, *American Machinist*, New York.

"Modern Finishes for the Machine Tool Industry," by W. R. Atwood, (chemical products division, E. I. DuPont de Nemours & Co., Parlin, N. J.

"Fundamentals of Polishing," by B. H. Divine, Divine Bros. Co., Utica, N. Y.

"Improvements in Copper Wire Mill Equipment," by J. R. Shea and J. L. Alden, Western Electric Co.

"Rotary Swaging and Its Effect on Materials," by J. H. Connolly, general manager, and Thomas Allen, engineer, Standard Machinery Co., Auburn, R. I.

"Principles of Designing Machine Tools with Antifriction Bearings," by R. F. Runge, vice president, S. K. F. Industries Inc., New York.

"Antifriction Bearings in Ordnance Work," by Frank Brauer, chief draftsman, Watertown arsenal, Watertown, Mass.

Urges Cross Licensing

New York, May 3.—Discussion of the possibilities of adopting a cross licensing plan in the electrical industry featured the meeting of the National Electrical Manufacturing association during the two day conference at Briarcliffe, N. Y., recently. Gerard Swope, president, General Electric Co., Schenectady, and president of the association, was authorized to appoint a committee to investigate and report upon the possibilities of adopting a plan similar to that in use by the National Automobile chamber of commerce. Adoption of a cross licensing agreement would be an exceedingly important and beneficial development with respect to the electrical industry. That industry has been under a heavy expense in connection with patent litigation.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

PREST-O-LITE CO. INC., New York, announces the sale of the storage battery branch of its business to a new company, called the Prestolite Storage Battery Corp. The entire capital stock of the purchasing company is owned by the Automotive Battery Corp. of New York. That portion of the Indianapolis plant of the Prest-O-Lite Co. Inc. which has been used for manufacturing storage batteries has been leased to the new company. Prest-O-Lite Co. Inc., while discontinuing the battery branch of its business, will continue the manufacture and sales of acetylene gas for use in the oxyacetylene process of welding and cutting metal, for use for automobile lighting, for lead burning, etc. These operations have in the past constituted the major portion of its activities. In addition to continuing its acetylene business, involving the operation of 32 acetylene plants in industrial cities throughout the country, the Prest-O-Lite Co. Inc. will continue to operate that portion of its Indianapolis plant devoted to the manufacture of gas facilities, acetylene, generators and other similar operations.

* * *

UNION IRON WORKS, Los Angeles, is now making a specially designed steel joist and steel form plate, utilizing special rolled sections from coast mills. This steel joist is the invention of George F. Pawling. Robert P. Miller, is vice president of the company.

* * *

PHILADELPHIA HARDWARE & MALLEABLE IRON WORKS, Philadelphia, is building a 2-story warehouse and finishing department, 82 x 191 feet, and a 1-story drop forge shop, 60 x 140 feet, at Holmesburg Junction. These buildings will house departments now in a rented plant. No additional equipment will be required.

* * *

BRECKENRIDGE MACHINE CO., Cleveland, has bought the former plant of the Lennox Chemical Co., Bliss road and Nickel Plate railroad, and will move its operations there shortly. It formerly occupied a leased plant, which has been sold to the Bailey Meter Co. The new plant has 60,000 square feet of floor on a 12-acre site.

* * *

CANTON DROP FORGING & MFG. CO., Canton, O., with an annual output of $1,500,000 will remain in Canton. The erection of a heat treating plant will be started soon. Charles A. Braucher is general manager. The concern has been located at Canton for more than 24 years and is one of the largest makers of automotive forgings in that section.

* * *

NORTHERN OHIO PARTS ASSOCIATION, recently formed by manufacturers and jobbers of automotive parts, has established headquarters at 5005 Euclid avenue, Cleveland. Officers of the association are: President, Ira Saks, Accurate Parts Mfg. Co.; vice president, H. J. LaFaye, Motor Rim Manufacturers Co.; secretary, Herbert Buckman; treasurer, W. P. Burrer, Aberdeen Motor Supply Co.

* * *

CENTRAL PATTERN & MODEL WORKS, 1845 West Thirty-fifth street, Chicago, has moved into its new plant at 3737 South Sacramento avenue. The plant is 40 x 100 feet, on a site 80 x 125 feet. A brass and aluminum foundry department is being started, this being a new feature. Frank P. Battle and Charles Zint Jr. are officers. The company will incorporate shortly under the name of the Central Pattern & Foundry Co., to cover the enlarged operations.

* * *

FLOOD CITY BRASS & ELECTRIC CO., recently organized, has bought the plant of the Flood City Mfg. Co., Johnstown, Pa., which was sold by the receiver. The company will manufacture bronze, brass and aluminum castings, hoists, electric welders, field coil testing machines and other specialties for mines. C. N. Replogle is president and general manager, R. L. Swank vice president and S. Arch Replogle secretary and treasurer. It is not planned to build a new plant now. Some new equipment has been installed.

* * *

HINER STRUCTURAL STEEL CO., Canton, O., has been reorganized. George H. Charls, formerly president and general manager of the United Alloy Steel Corp., is president and treasurer, Dan P. Hoover is vice president, John Quinn, president of the United Engineering & Foundry Co., is secretary, Paul Belden is director and Guy Hiner is general manager. No changes in the plant are contemplated immediately, it is said, although the business will be greatly enlarged and such plans will come later.

* * *

SOUTHERN RAILWAY has awarded to Fairbanks, Morse & Co., Chicago, an unusually large coaling station equipment contract. It includes ten reinforced concrete and steel stations of automatic conveyor type, ten complete locomotive sand plants and six automatic cinder conveyors, to cost nearly $500,000. The stations will be built at Monroe, Va., Columbia, S. C., Atlanta Junction, Ga., Bulls Gap, Tenn., Coster, Tenn., Sheffield, Ala., Anniston, Ala., Lawrenceburg, Ky., Winston-Salem, N. C. and Jacksonville, Fla.

* * *

SIMONDS SAW & STEEL CO., Fitchburg, Mass., has purchased the Abrasive Co., Philadelphia, valued at about $2,000,000 and will issue $1,200,000 5 per cent serial gold debenture bonds in connection with the purchase and financing of the business expansion. The purchase is made with the view of furnishing to Simonds customers grinding equipment of its own manufacture, adding grinding wheels, abrasive cloth and papers to its other products which includes saws, files, machine knives and sheet and bar steel. With the acquisition of the Abrasive Co. the Simonds Saw & Steel Co., will have plants at Fitchburg, Chicago, Montreal, Lockport, N. Y., Philadelphia and Hamilton, Ont.

* * *

HENRY F. HALL, president of the Hartford Wire Works, has recently purchased a 4-story business and manufacturing block on Allen street, Hartford, Conn., for $300,000, the building which houses the wire company. It was bought from Frederick H. Crosthwaite, a pioneer in the manufacture of wire goods in Hartford, and until recently president of the Hartford Wire Works Co. The transaction is interesting because Mr.

Hall started in business in Hartford as a bookkeeper at $9 a week. The Hartford Wire Works Co. was founded to manufacture wire florists' designs. Later the manufacture of window screens was added. Today modern machinery turns out a large variety of wire goods and wire specialties.

* * *

HICKMAN, WILLIAMS & CO., Chicago, pig iron and scrap brokers, are abandoning their iron and steel scrap yard, formerly maintained at 1533 West 119th street, Pullman, Ill. The company announces that it will continue in the scrap brokerage business in Chicago, no other changes being made as to distributive efforts..

* * *

PETROLEUM IRON WORKS, Beaumont, Tex., has installed equipment for fabrication of steel plates and expects to increase its output from 10,000 to 20,000 tons per year. The plant has just taken an order for fabricated steel for ten oil storage tanks of 80,000 barrels capacity each for the Texas Co. Other steel fabricating work has been taken by this company.

* * *

COLUMBIA AIRCRAFT CO., New York, is negotiating to purchase the plant of the Rickenbacker Motor Co., Detroit. Offers made at the recent receiver's sale were not acceptable and the plant will be disposed of at private sale. If the company obtains the plant, the Wright-Bellanca monoplane, the type which was recently used in the setting of a new world endurance record, will be manufactured, according to Charles A. Levine, chairman of the board of the New York concern.

* * *

MOSHER STEEL & MACHINERY CO., Dallas, Tex., W. S. Mosher president, has bought 30 acres at Maple avenue and the Missouri, Kansas & Texas railroad and will build a new plant to which fabricating and other activities will be transferred as rapidly as possible. Considerable expansion will be possible in the new plant. The ouput is composed of structural steel, plate work, reinforcing bars, ornamental iron, iron and brass castings and machinery. In addition to Mr. Mosher officers include: Vice president and sales manager, T. J. Mosher; secretary, F. Hicks, treasurer, T. J. Jones; superintendent, J. M. Shaw. J. M. Grasty is general manager and R. E. Disque works manager of the branch at Houston, Tex.

* * *

CHAIN BELT CO., Milwaukee, has re-elected its officers, as follows: President, C. R. Messinger; first vice president, Clifford F. Messinger; second vice president, J. C. Merwin; secretary, Brinton Welser; assistant secretary, W. H. Brandt; treasurer, C. L. Pfeifer; assistant treasurer, F. M. Lowum. Directors elected for the year are: Donald Fraser, William G. Frye, J. W. Merwin, Clifford F. Messinger, C. R. Messinger, H. O. Seymour, Edgar L. Wood. Reports at the annual meeting indicated a gain of about 10 per cent in business over 1925. Expansion included purchase of the Stearns Conveyor Co. at Cleveland, and construction of an engineering plant at the West Milwaukee works. These additions practically double manufacturing facilities for conveyors, elevators and other engineering work. Chain Belt Co. is one of a number of affiliated concerns, including Federal Malleable Co., Interstate Drop Forge Co. and Sivyer Steel Castings Co., Milwaukee, Nugent Steel Casting Co., Chicago. and Stearns Conveyor Co., Cleveland.

Convention Calendar

May 3-5—American Institute of Mining and Metallurgical Engineer. Meeting of open-hearth committee at Hotel Statler, Buffalo. Dr. H. Foster Bain, 29 West Thirty-ninth street, New York, is secretary.

May 5-6—National Hardware association. Sixteenth annual meeting of the metal branch at Hotel Cleveland, Cleveland. George A. Fernley, 505 Arch street, Philadelphia, is secretary.

May 5-6—Iron and Steel institute. Annual meeting at Institution of Civil Engineers, London. G. C. Lloyd, 28 Victoria street, London, S. W. 1, is secretary.

May 9-10—Taylor society. Sring meeting jointly with Personnel Research Federation association at National Research council, Washington. H. S. Person, 29 West Thirty-ninth street, New York, is managing director.

May 12-14—American Gear Manufacturers association. Eleventh annual meeting at Hotel Hayes, Jackson, Mich. T. W. Owen, 2443 Prospect avenue, Cleveland, is secretary.

May 17-19—American Drop Forging institute. Annual meeting at French Lick Springs hotel, French Lick Springs, Ind. Donald McKaig, 1001 Union Bank building, Pittsburgh, is secretary.

May 18-19—American Refractories institute. Spring meeting at Hotel Traymore, Atlantic City, N. J. M. C. Booze, 2202 Oliver building, Pittsburgh, is secretary.

May 19—National Industrial Conference board. Annual meeting at Hotel Astor, New York. Magnus W. Alexander, 247 Park avenue, New York, is president.

May 19-20—American Society for Steel Treating. Spring sectional meeting at Hotel Pfister, Milwaukee. W. H. Eisenman, 4600 Prospect avenue, Cleveland, is secretary.

May 20—American Iron and Steel institute. Spring meeting at Hotel Commodore, New York. E. A. S. Clarke, 75 West street, New York, is secretary.

May 21—National Association of Foremen. Fourth annual convention at Cincinnati Zoological Gardens, Cincinnati. E. H. Tingley, 1249 U. B. building, Dayton, O., is secretary.

May 23-26—American Society of Mechanical Engineers. Spring meeting at White Sulphur Springs, W. Va., Calvin W. Rice, 29 West Thirty-ninth street, New York, is secretary.

May 25-27—National Foreign Trade council. Fourteenth national convention at Hotel Statler, Detroit. O. K. Davis, 1 Hanover Square, New York, is secretary.

May 25-27—Associated Machine Tool Dealers. Meeting at Granville, O. T. W. Carlisle, 1392 West Third street, Cleveland, is secretary.

May 25-27—Society of Industrial Engineers. Annual meeting at Hotel Stevens, Chicago. George C. Dent, 608 South Dearborn street, Chicago, is secretary.

Aircraft Design Tending Toward All-Metal

The trend of airplane construction undoubtedly is toward all-metal type ships, it was emphasized at the first aeronautic meeting of the American Society of Mechanical Engineers held at Hotel Statler, Buffalo, April 25-26. Anthony H. G. Fokker, designer of 45 different types of aircraft, was one of those most strongly favoring the all-metal type plane, basing his ideas on long studies of actual operation of craft designed by him and by others.

V. E. Clark, vice president, Consolidated Aircraft Corp., Buffalo, in discussing tendencies in airplane design, said that while Europe is ahead of the United States in passenger carrying on regularly established routes, it is barely holding its own in other phases of aviation. "England has no welded structures, but we use little else in our fuselages," Mr. Clark said. "Fokker developed the welded steel tube-type in Germany, but Germany has since rejected his design and all other countries followed except the United States. France has wooden fuselages and wings of metal structures, we have metal fuselages and wooden wing structures. England uses little duralumin, Germany little else, France some, we less. England favors biplanes, Germany likes monoplanes."

Bishop Clements, metallurgist, Curtiss Aeroplane & Motor Corp., Buffalo, said the utmost care must be used in producing electric furnace steel for airplane use to guard against defects, which, he said, can not be eliminated entirely in open-hearth steel.

William P. McCracken Jr., assistant secretary of commerce in charge of civil aviation, emphasized the need of casting aside the "inferiority complex" which he said so many Americans have assumed in their attitude toward their own airplane industry.

One of the principal needs of aviation, according to Elmer A. Sperry, president, Sperry Gyroscope Co., New York, is the development of a heavy fuel oil engine to cheapen the cost of operation of aircraft. This must be done in the interest of safety and greater power per unit weight in addition to the need from an economic standpoint, he said.

Industrial Business Changes

STOCKBRIDGE MACHINE CO., Worcester, Mass has been reorganized with John W. Harrington president and treasurer and Leon J. Barrett general manager. The plant will not be moved. Offices of the company will be removed to the plant of the Leon J. Barrett Co., Grafton road, and the present offices will be occupied by the engineering and drafting departments of the Leon J. Barrett Co.

* * *

Ajax Metal Co., Philadelphia, has bought the Foley Furnace Co., which owns a number of electric furnace patents.

* * *

New York office of the Bayonne Bolt & Nut Corp., Bayonne, N. J., has been moved from 17 Battery place to 117 Liberty street.

* * *

Schilling-Evertz Co., Seattle, contractor in ornamental iron and wire, has bought the business of F. C. Cross & Co., 1200 Fourth avenue south.

* * *

Republic Iron & Steel Co. has moved its Chicago offices from 561 to 758 McCormick building, 332 South Michigan boulevard, Chicago.

* * *

Pickands, Brown & Co., pig iron and coke merchants, have moved their offices from 1315 to 1500 McCormick building, 332 South Michigan boulevard, Chicago.

* * *

Trumbull Steel Co., Youngstown, O., has moved its New York district office from the Grand Central Terminal to the new Graybar building, New York.

* * *

Sharon Steel Hoop Co., Sharon, Pa., has moved its Cleveland offices from 1505 to 1809 Union Trust building. T. M. Galbreath is manager of the Cleveland office.

* * *

Universal Pipe & Radiator Co. and its subsidiaries will remove their general offices May 1 to the Graybar building, 420 Lexington avenue, New York. The subsidiaries include the Central Foundry Co., Central Radiator Co., Molby Boiler Co., Essex Foundry and Central Iron & Coal Co.

* * *

Rogers Brown & Crocker Bros. Co., dealers in pig iron and coke, have moved their Chicago offices from 1500 to 1350 McCormick building, 332 South Michigan boulevard.

* * *

Brace Pressed Steel Corp., Elizabeth, N. J., has been organized to take over and expand the plant of the Brace Pressed Steel Co., 316 Port avenue. W. B. Brace and H. F. Walsh head the new company.

* * *

International Derrick & Equipment Co., Columbus, O., manufacturer of well drilling equipment, has moved its offices at New York from 30 Church street to 74 Trinity place, room 909.

* * *

Stanley Works of New Britain, Conn., owner of the American Tube & Stamping Co., Bridgeport, Conn., plans to move the metal stamping department of the concern from Bridgeport to New Britain.

* * *

Economy Pump & Oil Tool Co., Los Angeles, is moving from 1288 East Sixth street to 4424 East Forty-ninth street. The new plant affords six times the space of the old. John A. Yerkes is general manager.

* * *

Whiting Corp., Harvey, Ill., crane and foundry equipment manufacturer, has appointed Brazelton, Wessendorff & Nelms Inc., 317 Preston avenue, Houston, Tex., its representative for southeastern Texas.

* * *

The New York office of the Newton Steel Co. was moved May 1 from 814 Liggett building, to 1201 Corn Exchange Bank building, 1 East Forty-second street. L. J. Voyer is New York district manager.

* * *

George D. Whitecomb Co., Rochelle, Ill., has appointed the American Machinery & Supply Co., 1113 Howard street, Omaha, Nebr., its distributor in Nebraska and western Iowa, and the Clyde Co., 309 Magazine street, New Orleans, for Louisiana and southern part of Mississippi and Alabama.

* * *

New York sales office of the New Jersey Foundry & Machine Co., builder of cranes and other conveying equipment, for 20 years at 90 West street, has been moved to room 403, Park-Murray building, 915 Park place. R. Irwin is in charge.

* * *

Chain Belt Co., Milwaukee, manufacturer of mixing and paving machinery, has appointed the Lone Star Road Machinery Co., 2003 South Akard street, Dallas, Tex., its distributor in Texas. B. A. Williams, Dallas, Tex., is president of the Lone Star company, which was recently formed.

* * *

Murphy Equipment Co., 212 Wilder building, Charlotte, N. C., has been appointed distributor in North and South Carolina for the Dayton-Dowd Co., Quincy, Ill., manufacturer of centrifugal pumps. This company also will take over distribution in Georgia and Florida, formerly handled as a direct branch.

* * *

Novo Engine Co., Lansing, Mich., manufacturer of engines, pumps, hoists and combination pumping outfits, has appointed the San Antonio Machine & Supply Co., San Antonio, Tex., and the Construction Equipment Co., Columbia, S. C., agents for southwestern and southeastern territory. The former has offices at Waco and Corpus Christi, Tex., from which distribution will be made.

* * *

Reed-Prentice Corp., Worcester, Mass., manufacturer of machine tool equipment, has made agency arrangements for sale of its lathes, radial drills, millers and planers, with Shaw-Palmer-Bakewell Co., Los Angeles; Flanagan Machinery Co., San Francisco, and F. A. Daley Co., Portland, Oreg. On its portable link sawing machine it has made agency arrangements with Shaw-Palmer-Bakewell Co., Los Angeles; A. L. Young Machinery Co., San Francisco, and P. Einnock & Co., Portland, Oreg.

Construction and Enterprise

Concise Timely Business Building Opportunities
from the Field of Industry

BIRMINGHAM, ALA.—Singer Sewing Machine Co., 410 North Ninth street, has bought a site and is having plans made for a new plant.

HOLT, ALA.—Inland Waterways Corp., Gen. T. Q. Ashburn, executive officer, is planning to build terminals for the Mississippi-Warrior barge line.

RIVERSIDE, CALIF.—Riverside school district will award contract shortly for a shop for a junior high school.

SAN FRANCISCO—Herbst Mfg. Co., 1525 Mission street, manufacturer of sheet metal products, will build a 1-story plant at Mission and Eleventh streets.

SAN JOSE, CALIF.—Hellwig Iron Works, 67 Almaden avenue, will award contract soon for a 1-story machine shop.

SANTA ROSA, CALIF.—Santa Rosa Oil Burner Co., Frank Sandercock, general manager, will build a 1-story plant for which equipment will be required.

STOCKTON, CALIF.—Geiger Iron Works, manufacturer of special machinery and mechancial devices, will build an addition on adjoining site, 200 x 300 feet.

BRIDGEPORT, CONN.—Bridgeport Metal Goods Co., Cherry street, will build a 2-story addition 60 x 240 feet. Fletcher-Thompson Inc., 542 Fairfield avenue, is architect.

MIAMI, FLA.—Reliance Motor & Machine Co. has been incorporated with $10,000 capital by Richard Graft, Neil Salmonson and James T. Shields.

ROME, GA.—Southern Railway System, Charlotte, S. C., G. L. Sitton, chief engineer, has had plans drawn for machine shops and other shop buildings here.

Where additional information is presented, reference is made to date of issue in which previous item appeared.

THOMASVILLE, GA.—Burnett Boiler & Tank Works is planning to add to its equipment a drop hammer and trip hammer.

CHICAGO—Western Electric Co., Kenneth and Twenty-second streets, will build a 1-story addition 300 x 400 feet.

CHICAGO—Sav-Oil Piston Ring Co., 2025 West Jackson boulevard, has been incorporated with $10,000 capital by J. R. Corbet, Arthur D. Cloud and M. House. A. D. Cloud, 134 North LaSalle street, is correspondent.

CHICAGO—Robert Gair Co., Chicago Coated Board division, Carl R. Engle, engineer, 420 East North Water street, will take bids about May 10 on a 2-story addition to its machine shop.

CHICAGO—Creiger Electric Mfg. Co. Inc., 220 West Ontario street, has been incorporated to manufacture electrical devices, metal boxes, panel boxes and similar products, by May Skupa, George A. Creiger and Rudolph Skupa Lester Witte & Co., 166 West Jackson boulevard, are correspondents.

CHICAGO—Superior Rolling Window Screen Corp., 2152 Fulton street, has been incorporated with $30,000 capital to manufacture window and door screens, and similar products by Max H. Hurd, P. G. Hinkley and Charles E. Smith Jr. Replogle & Smith, 307 North Michigan avenue, are correspondents.

CHICAGO—E. C. Keyser Co., 459 West Twenty-sixth street, has been incorporated with 100 shares no par value to manufacture machinery, engineering and hardware specialties, by Elbert C. Keyser, Vernon Keyser and A. G. L. Schmulle. Dun & Coboy, 209 South LaSalle street, suite 540, are correspondents.

CHICAGO—Central States Wire & Iron Works Inc., 219 North Elizabeth street, has been incorporated with $7000 capital to manufacture market specialties by David Worobow, Elmer Thalin and Roy H. Mabey. N. K. Wertheimer, 155 North Clark street, suite 1207, is correspondent.

GALESBURG, ILL.—Winslow Boiler & Engineering Co., Knoxville and Chamberlain streets, is considering plans for a 1-story plant, for which equipment will be required.

GILMAN, ILL.—Kietzman Electrical Mfg. Co. Inc. has been incorporated with $3000 capital to manufacture electrical goods and appliances by August F. Kietzman, George Ennen and Ernest Giles. Morris & South, Watseka, Ill., are attorneys.

ROCKFORD, ILL.—Charles A. Lind Pattern Works Inc., Harrison avenue and Ninth street, has been incorporated with $25,000 capital to manufacture patterns and models, by Charles L. Lind, Roy W. Engberg and Herman E. Rupp. N. P. Nelson, 304 Reliance building, is correspondent.

DAVENPORT, IOWA—Blackhawk Foundry & Machine Co., A. Diedrich, manager, 323 Clark street, is considering building a 1-story brick foundry addition.

CONNERSVILLE, IND.—Kehl Products Inc. has been incorporated with $10,000 capital to manufacture dies, stampings and metal specialties by Howard L. Kehl, Frank E. Kehl and George S. Tatman.

ELKHART, IND.—Elkhart Brass Co. has been incorporated with $250,000 capital.

EVANSVILLE, IND.—Chicago & Eastern Illinois railroad T. E. Powell, president, 332 South Michigan boulvard, Chicago, is having plans drawn and will take bids about May 9 for 1-story railroad shops here.

FT. WAYNE, IND.—Fries Tool & Machine Works, G. Mahunin, Standard building, architect, is having plans drawn for a 1-story plant 40 x 140 feet.

FT. WAYNE, IND.—Wayne Tank & Pump Co., manufacturer of gasoline pumping equipment, has let contract to Indiana Engineering & Construction Co. for a 1-story top addition to its plant.

FT. WAYNE, IND.—Wayne Cylinder Grinder Co. has leased a new plant to be built for it, which will give enlarged production, with added equipment. Pohlmeyer & Pohlmeyer, Ft. Wayne, are architects.

GARY, IND.—American Sheet & Tin Plate Co., Frick building, Pittsburgh, is having plans drawn for an additional mill.

INDIANAPOLIS—R. J. Cossey, 2229 East

Resale Equipment News

MILTON MFG. CO., Milton, Pa., W. W. Wilson and Charles Steele, receivers, is operating some departments in an effort to convert semifinished products and scrap into cash. Efforts are being made to reorganize the company and a plan will be submitted to creditors in a short time.

* * *

Plant and equipment of the Butler Automotive Steel Co., Palmer township, Pa., has been bought at trustee's sale in bankruptcy by John R. Chidsey, Easton, Pa. No announcement has been made as to operation of the plant.

* * *

Boiler shop equipment of the C. Cunningham Boiler Works, 427 Greenpoint avenue, Brooklyn, N. Y., is to be sold. It includes a 75-ton hydro riveter, 200-ton girder press, flange punch, plate shear, bevel shear, radial drill, bolt and pipe machine, air compressor, fuel oil engine, countershafts and a quantity of small tools and equipment.

* * *

Valley Iron Works, Inc., Williamsport, Pa., William C. Riley, president, has decided to go out of business. The plant is to be offered for sale and operations will be terminated in about three months. The company was established in 1865 and specialized in heavy machinery, along three lines. One of these lines has been sold and the other two will be disposed of.

New York street, is building a machine shop and service building.

LA PORTE, IND.—Chicago Pump Co., N. H. Weil, secretary, 2300 Wolfram street, Chicago, is considering building a plant here.

NEW ORLEANS—Pullman Car & Mfg. Co., D. A. Crawford, president, Pullman building, Chicago, confirms project of building foundry here but plans not sufficiently definite to indicate exact nature of product.

BALTIMORE, MD.—American Propeller & Mfg. Co., 220 Grindall street, airplane propellors, will build an addition.

BALTIMORE, MD.—Monumental Machine Co., 2505 Elliott street, J. W. Sims president, will build a 1-story addition to its machine shop.

BALTIMORE—Anchor Fence Post Co., 9 East Thirty-eighth street, New York, has bought site at Thirty-fifth street and Eastern avenue on which to build plant with 100,000 square feet of floor space, starting in June.

BALTIMORE, MD.—John J. Greer & Co. Inc., C. S. Dell president, 207 West Pratt street, manufacturer of iron and steel products, will build a 1-story warehouse at Ridgely and Ostend streets.

BALTIMORE, MD.—Lock Joint Pipe Co., Wilkens avenue and Millington Lane, P. Grow manager, will double capacity of its plant at Garrison Lane and the Pennsylvania railroad.

BOSTON—Bens & Co. Inc. has been incorporated with $10,000 capital to manufacture steel and metal goods, machines, appliances and other products by Edward M. Jennings.

BOSTON—General Mfg. Co. has been incorporated with $5000 capital to manufacture machinery and tools, by Frederick Kaufman, 1223 Beacon street, Brookline, Mass.

BOSTON—Rilso Co. Inc. has been incorporated with $25,000 capital to manufacture vending machines, by Rudolph Lippold, 11 Roanoke avenue.

BOSTON, MASS.—Improved Specialties Co. has been incorporated with $25,000 capital, 1000 shares no par value, to manufacture machinery, by Edward F. Woods, Herbert E. Enslin, and Carlton M. Woods.

BOSTON—H. M. Rambach, 18 Tremont street, will build a 1-story machine shop 50 x 195 feet at Harvard street and Alton place, Brookline, Mass. R. H. Bryant & Son, 334 Washington street, are architects.

EVERETT, MASS.—Read Mfg. Co. has been incorporated with $25,000 capital to manufacture machinery by Milton Read, Exeter, N. H.

EVERETT, MASS.—Universal Pressed Steel Co. has been incorporated with $100,000 capital, taking over the business of the Gem Stamped Steel Co., by Clark F. Higgins, 190 Warwick road, Melrose, Mass.

LAWRENCE, MASS.—Emerson Mfg. Co., 353 Market street, manufacturer of machinery, is about to build a 1-story machine shop 50 x 220 feet. Ashton, Huntress & Alger, architects, 477 Essex street, are taking bids.

MILFORD, MASS.—Milford Column Co. has been incorporated with $50,000 capital by Grosvenor Calkins, Newton, Mass.; Gladys Mitchell, Somerville, Mass.; and Olive G. Curtice, Auburndale, Mass. It has bought the column manufacturing department of the Milford Iron Foundry Co. and will equip a plant for the manufacturing of structural columns.

DETROIT—Detroit Stove Works will build an addition to its enameling plant.

DETROIT—McCord Radiator Mfg. Co., 2587 East Grand boulevard, manufacturer of radiators for automobiles, is planning to rebuild burned portion of its plant.

HART, MICH.—Kunkel Valve Grinder & Mfg. Co. will take bids shortly for a 2-story addition to its plant. Edwin E. Valentine, Union National Bank building, Muskegon, Mich., is president.

IRONWOOD, MICH.—Adolph Mueller, 225 East McLeod street, has awarded the general contract to Alex Rosemurgy, Bessemer, Mich., for erecting a $50,000 garage and service station, 80 x 150 feet, 2-story.

MORENCI, MICH.—Parker Rust Proof Co. Inc., W. M. Cornelius, secretary and treasurer, 2177 East Milwaukee street, Detroit, is considering a 1-story addition to its plant.

PONTIAC, MICH.—Oakland Motor Car Co., C. N. Trask, works engineer, Oakland avenue, has let contract to the Austin Co., 16112 Euclid avenue, Cleveland, for a foundry plant, of 1-story buildings.

PORT HURON MICH.—South Park Welding Works has been incorporated with $10,000 capital to conduct a welding works, by James S. Ross, Clarence D. Tuer and Edward S. Nicholson, 2709 Sturges street, Port Huron.

ROMEO, MICH.—Jensen Foundry Co. has been incorporated with $25,000 capital to operate a foundry by M. Jensen, Romeo, Mich., A. W. Lau and C. E. Anderson, Detroit.

SOUTH LYONS, MICH.—Michigan Seamless Tube Co. has been incorporated with 20,000 shares no par value, to manufacture metal products.

MINNEAPOLIS—Northern Steel Products Co., recently organized, has bought the former plant of the Shotwell-Johnson Mfg. Co. and will equip it for the manufacture of steel fence posts and other specialties. W. B. Tscharner is president.

KANSAS City, MO.—Southwestern Bell Telephone Co., E. D. Nims, president, Telephone building, will build a repair shop, garage and warehouse, 1 and 3-story, on Roanoke road near Thirty-fifth street. Irwin R. Timlin, Telephone building, is architect.

SPRINGFIELD, MO.—St. Louis-San Francisco railroad, F. G. Jonah, chief engineer, St. Louis, will build addition to roundhouse and coach shops here.

ST. LOUIS—Missouri, Kansas & Texas railroad, G. E. Scott purchasing agent, has issued an inquiry for about 65 tools, including drill presses, boring machines, grinders, threaders, millers, lathes, shapers and radial upright drills.

ST. LOUIS—Gould Castings Corp., 5256 Vernon street, has bought six acres and optioned five more at Kansas City, Mo., on which to build a 1-story foundry 150 x 375 feet, equipped with electric furnace, for production of iron, steel, brass, bronze and other metal castings.

ANACONDA, MONT.—Anaconda Copper Mining Co., 25 Broadway, New York, is having plans made for an electrolytic zinc plant here to handle ores and concentrates from Montana, Idaho and Utah districts.

CAMDEN, N. J.—Frassoni Iron Works has been incorporated with 11,000 shares no par value by Curry & Purnell, attorneys, Camden.

ELIZABETH, N. J.—Brace Pressed Steel Co.

Where Machinery Exports Went in February

	Lathes			Drills					Pneumatic portable						
	Engine	Turret	Other	Vertical	Radial	Sensitive	Other	Gear cutters	tools lbs.	Planes	Shapers and slotters	Metal sawing cutting	Milling knee column	Machines other
Russia	16	.....	1	.....	.....	.....	.....	1	.....	.....	.....	.....	19	1
France	.....	1	.....	6	.....	.....	.....	1	87	.....	.....	.....	1	2
Germany	.....	2	10	2	1	.....	.....	2	21	.....	2	.....	.....	1
Italy	.....	.....	1	4	.....	.....	.....	.....	30	.....	.....	.....	.....	.....
Netherlands	1	.....	.....	.....	.....	.....	.....	.....	7	.....	.....	.....	.....	.....
Spain	1	.....	.....	.....	.....	.....	.....	.....	95	.....	.....	.....	.....	2
Sweden	.....	3	.....	1	1	.....	2	.....	12	.....	.....	.....	.....	2
United Kingdom	6	6	11	4	.....	.....	4	1	380	.....	1	2	5	7
Canada	19	5	24	3	.....	2	1	.....	153	3	1	4	3	2
Mexico	.....	.....	.....	1	.....	.....	1	.....	194	.....	.....	.....	.....	1
Cuba	1	.....	.....	.....	.....	.....	.....	.....	11	.....	.....	.....	.....	.....
Argentina	.....	.....	.....	.....	.....	.....	.....	.....	18	.....	.....	.....	.....	.....
Colombia	2	.....	2	.....	.....	.....	9	.....	20	.....	1	1	.....	.....
Chile	.....	.....	.....	.....	.....	.....	.....	.....	21	.....	.....	2	.....	.....
Brazil	1	.....	.....	.....	.....	.....	.....	.....	9	.....	.....	.....	.....	.....
British India	.....	.....	.....	.....	.....	.....	.....	.....	13	.....	.....	.....	.....	.....
Japan and Chosen	4	1	1	.....	.....	.....	12	.....	146	.....	3	1	1	.....
Philippine Islands	.....	.....	.....	.....	.....	.....	.....	.....	2	.....	.....	.....	.....	.....
Australia	.....	.....	.....	.....	.....	15	11	1	77	.....	1	1	1	3
New Zealand	.....	1	.....	.....	.....	22	.....	.....	.....	.....	.....	.....	.....	.....
British S. Africa	1	.....	.....	.....	1	.....	.....	.....	20	.....	.....	.....	.....	.....
Venezuela	.....	.....	.....	.....	.....	.....	3	1	.....	.....	.....	.....	.....	.....
Other countries	1	2	6	14	.....	1	.....	.....	46	4	1	1	.....	.....
Tot., Jan., 1927	**36**	**8**	**21**	**23**	**7**	**31**	**25**	**21**	**1,335**	**3**	**38**	**31**	**26**	**28**
February	**53**	**21**	**56**	**35**	**3**	**40**	**49**	**7**	**1,362**	**7**	**10**	**12**	**30**	**21**

Iron and Manganese Ores and Minerals

LAKE SUPERIOR ORES

Iron Ore

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.50
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	nominal
North African low phosphorus	10.50 to 11.50
Swedish and Norwegian low phosphorus, 68 per cent	10.50 to 10.75
Swedish foundry or basic, 66 to 68 per cent	9.50
Spanish foundry or basic, 50 to 54 per cent	nominal
North African foundry and basic 50 to 54 per cent	9.00 to 9.50

Manganese Ore

Prices do not include duty at rate of 1 tained.

cent per pound of metalic manganese con-

Brazilian	37 to 38 cents
Indian	37 to 38 cents
Caucasian, 53 to 55 per cent	
Washed	38 to 40 cents

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton	$18.00
Washed gravel, imported duty paid eastern tidewater, per ton	16.50 to 17.25

has been incorporated with 70,000 shares preferred and 3000 shares common no par value by Frank K. Sauer, Elizabeth, N. J.

ENGLEWOOD, N. J.—Monument Hardware & Automobile Accessories Co. has been incorporated with $15,000 capital by Greenberg & Greenberg, attorneys, Hoboken, N. Y.

JERSEY CITY, N. J.—Frederick Powell has plans prepared by Kelly & Cowan, architects, 921 Bergen avenue, for a 2-story foundry plant for making gray iron castings.

NEWARK, N. J.—Miele Mfg. Co. has been incorporated with $50,000 capital to manufacture automobiles and accessories by Dominick M. Acocella, Newark.

NEWARK, N. J.—K. & M. Steam Engineering Co. has been incorporated with $95,000 capital by Frederick H. Growl, attorney, Newark.

NEWARK, N. J.—Newark Gear Cutting Machine Co., 65 Prospect street, will build a 2-story addition 49 x 95 feet, to its machine shop. Bishop & Scudder, 9 Clinton street, are architects and engineers.

PARK RIDGE, N. J.—Mittagh & Volger, Park avenue, manufacturer of typewriter spools and metal products, is having plans drawn for a 2-story plant.

BROOKLYN, N. Y.—John Trageser Steam Copper Works, New York, has bought a site on Grand street, Williamsburg, on which it will build a plant for its own occupancy.

BROOKLYN, N. Y.—Abraham M. Gordon Iron Works has been incorporated with 100 shares no par value to operate an iron works, by A. Felt, 50 Court street.

BUFFALO—Rome Wire Co., H. Wodtke, Clyde avenue, manager, will build a 1-story plant 120 x 300 feet on Amherst street.

JAMESTOWN, N. Y.—J. P. Danielson & Co., 583 Allen street, manufacturer of tools and wrenches, will take bids soon for a 1 and 2-story addition. J. P. Danielson is president.

LOCKPORT, N. Y.—Harrison Radiator Corp., Frank M. Hardiman, manager, Washington street, has let contract to the Austin Co., Cleveland, for a 1-story foundry addition at 64 Lock street. Also purposes a further addition to its plant on Washburn street.

LONG ISLAND CITY, N. Y.—Mergenthaler Linotype Co., 29 Ryerson street, has let contract to the Industrial Engineering Co., 50 Church street, New York, for a 1-story brick factory building on Hall street.

NEW YORK—Best Die Casting & Metal Stamping Corp. has been incorporated with $25,000 capital to make die castings and stampings, by Shorr, Brodsky & King, 41 Union Square, attorneys.

NEW YORK—City Smelting & Refining Corp. has been incorporated with $20,000 capital to refine metals, by C. Mintz, 32 Broadway.

NEW YORK—Centre Tool & Die Mfg. Co., has been incorporated with $10,000 capital to manufacture dies and tools, by Max Balaban, 149 South Ninth street, Brooklyn, N. Y.

NEW YORK—Schroeder Bros. Auto Radiator Corp. has been incorporated with $50,000 capital to manufacture sheet metal goods, by J. L. Frider, 358 Fifth avenue.

NEW YORK—Atlas Steel & Wire Partition Co. has been incorporated to manufacture steel and wire products with $15,000 capital by Gordon, Tally & Gordon, 347 Fifth avenue.

NEW YORK—Casco Products Corp. has been incorporated with $10,000 capital to manufacture machinery by H. Lehrich, 342 Madison avenue.

NEW YORK—Dry-Pik Sales Corp. has been incorporated with 200 shares no par value, to manufacture patented machinery by Licht & Licht 1440 Broadway.

NEW YORK—New York Refrigerating Machine Co. has been incorporated with $50,000 capital to manufacture refrigerating machinery by G. Caranicolas, 2 Lafayette street.

NEW YORK—Stelmore Engineering Co. has been incorporated with $5000 capital to manufacture boilers, by J. Shapiro, 350 Stone avenue.

PITTSFORD, N. Y.—A. W. Brandt, commissioner of highways, Albany, will award contract soon for a highway workshop here.

ROCHESTER, N. Y.—Stromberg-Carlson Telephone Mfg. Co. will build the third unit of its new factory, a 1-story building, 428 x 460 feet.

YONKERS, N. Y.—Otis Elevator Co. has closed on structural steel for another plant addition, to the American Bridge Co.

CANTON, O.—Union Metal Mfg. Co., 1432 Maple avenue, manufacturer of metal columns and lighting standards, will build a plant.

CLEVELAND—Colonial Iron Works, 881 East Sixty-seventh street, will build a one and two-story factory and plant.

CLEVELAND—Nickel Plate railroad, A. C. Harvey chief engineer, is building a 1-story locomotive repair shop, 38 x 213 feet.

CLEVELAND—Nickel Plate railroad has awarded the contract for the new 1-story warehouse 80 x 320 feet, to the Austin Co., Cleveland.

CLEVELAND—Bailey Meter Co., E. G. Bailey, president, 2015 East Forty-sixth street, is having plans made for alterations and additions to former plant of Coburn Machine Tool Co., Ivanhoe road, recently purchased. Hadlow Hick & Co., 750 Prospect avenue, are architects.

COLUMBUS, O.—International Derrick & Equipment Co., Buttles and Michigan avenues, has let contract to J. W. Heckart, High-Long building, for a 3-story addition, 65 x 126 feet.

PAINESVILLE, O.—Metallic Binding Co. is building a 1-story plant 150 x 200 feet.

BARTLESVILLE, OKLA.—Bartlesville Zinc Co. is considering adding to its plant and equipment to increase production.

PORTLAND, OREG.—Steel Plate Construction Co. has been incorporated with $5000 capital by W. L. McCulloch, 414 Couch building.

ST. HELENS, OREG.—St. Helens Iron & Marine Works has been incorporated with $25,000 capital by W. A. Levi, A. L. Morris and J. W. McDonald.

CONSHOHOCKEN, PA.—Trassioni Metal Co., C. R. Trassioni, Darby, Pa., has bought the plant of the Duplex Metallic Co. and will equip it for manufacture of steel tanks.

LEBANON, PA.—Lebanon Iron Co. is having plans made for extensions and alterations to its puddling plant. Electrically operated equipment will be installed.

NEW KENSINGTON, PA.—General Electric Co., Schenectady, N. Y., Sprague electric division, will build a 1-story addition 88 x 235 feet.

NORTHAMPTON, PA.—Atlas Portland Cement Co. has closed on structural steel for a new addition here; also on a 15-ton electric overhead crane as one of its initial equipment purchases.

PHILADELPHIA—Union Transfer Co., 1002 Spring Garden, is building a 2-story machine shop 39 x 112 feet.

PHILADELPHIA—Philadelphia Gear Works is going ahead with the construction of a plant addition and has just closed on structural steel.

PHILADELPHIA—Progress Paper Box Mfg. Co., 831 North Thirteenth street, his having plans revised by Benjamin Shulman, architect for a factory addition.

PHILADELPHIA—David Lupton's Sons Co., Tulip and Allegheny avenue, manufacturer of steel sash, has bought two 2-story factory buildings, 100 x 170 feet, for use in expanding its business.

PHILADELPHIA—Morris Wheeler & Co. Inc., W. P. Morris, president, Thirtieth and

Locust streets, are having plans drawn for a steel fabricating plant, which will be erected within one or two years.

AMARILLO, TEX.—Reed Sheet Metal & Roofing Co. has been incorporated by B. G. Reed, H. M. Reed and H. B. Norwood.

HARLINGTON, TEX.—Nicholson & Ackerman, care chamber of commerce, are having plans made for a machine shop plant.

Business in Canada

BLIND RIVER, ONT.—Carpenter Hixon Co., Ltd., which recently took over the property here of the J. J. McFadden Co., propose to start work immediately on additional saw and lumber mills.

FORD CITY, ONT.—Canadian Motor Lamps Co. Ltd. has been incorporated to mine, smelt and refine ores, metals and minerals with $30,000 capital and 12,500 shares of no par value, by Robert Gowans, Charles D. Magee, Earnest H. Stewart and others.

GALT, ONT.—H. Luenfeld & Sons Ltd. has been incorporated to manufacture and deal in metal and metal products with $100,000 capital by Harry Lunenfeld, Samuel Lunenfeld, Jean Sparling and others.

MILTON, ONT.—The crusher and storage bins of the Milton Pressed Brick Co. were destroyed by fire April 20. Owners will rebuild immediately.

OSHAWA, ONT.—General Motors Corp. of Canada Ltd., announces that a new building 180 x 620 feet will be erected as addition to the large motor works here at a cost of $500,000. Construction work will be started immediately.

OSHAWA, ONT.—Ice-O-Matic Refrigerating Co. Ltd., has secured a site here and proposes to start work at once on a manufacturing plant. The company will discontinue its work at Windsor, Ont., and carry on complete operations at Oshawa. Officers of the company include R. A. Stapells of Toronto; John Stacey, C. N. Henry and Frank L. Mason of Oshawa.

OTTAWA, ONT.—Moss Mines Ltd., has been incorporated to mine, smelt, and refine ores, metals and minerals, with $4,000,000 capital by Nora Cuff, Mona Devine, Thomas A. Beament and others.

OTTAWA, ONT.—Norman Mines Ltd. has been incorporated to mine, smelt and refine ores, metals and minerals with 500 shares of no par value by Norman B. Davis, William Q. Ketchum, Harold M. Code and others.

PEMBROKE, ONT.—Steel Equipment Co. of Canada will erect a 50 x 100-foot addition to its plant and a second story addition 35 x 100 feet.

PEMBROKE, ONT.—Steel Equipment Co. of Canada Ltd., head office Ottawa, Ont., has invited bids for an addition to its plant here, 50 x 100 feet. Plans have also been prepared for a second addition, 35 x 100 feet.

SAULT STE. MARIE, ONT.—Jerry L. Lynch of the Michigan Sault, is completing arrangements for a large sawmill at Michipicoten Harbor near here. It is the intention to start construction work next month.

TORONTO, ONT.—Gresham Building & Construction Co. has been incorporated with $40,000 capital by Robert E. Moule, John H. Moule, Joseph S. Anderson and others.

TORONTO, ONT.—Rayner Construction Ltd. has been incorporated to carry on the business of general contractor and engineer with $100,000 capital by Howard A. Harrison, William J. Beatty and William R. West.

TORONTO, ONT.—Automatic Awnings Ltd. has been incorporated to manufacture and deal in automatic locks, with $40,000 capital, by John B. O'Brien, Thomas S. Giles, Douglas P. Robinson and others.

TORONTO, ONT.—Price-Logan Mines Ltd. has been incorporated to carry on the business of a mining, milling, reduction and development company, with 1,000,000 shares of no par value by William S. Walton, Percy C. Finlay, Florence M. Thomson and others.

TORONTO, ONT.—Wilson Bunnell & Borgstrom Ltd. has been incorporated to carry on the business of consulting, structural, civil and mechanical engineer, with 400 shares no par value by Grace D. Connell, Violet M. Gore, Agnes D. Forbes and others.

MONTREAL, QUE.—Ocean Dominion Steamships of Canada Ltd. has been incorporated to carry on the business of shipbuilder, contractor and engineer, with $100,000 capital stock, by Charles A. Barnard, Bertha Charlebois, Mary B. McKeown and others.

MONTREAL, QUE.—Canadian Stebbins Engineering & Mfg. Co. Ltd. has been incorporated to manufacture pulp and paper machinery, engines, boilers and power plants with $50,000 capital by John E. Grivell, Howard K. Hawthorn, Helena Peers and others.

PRINCEVILLE, QUE.—Plans are being prepared by C. C. Lessard, 32 Allies boulevard, Quebec, Que., for waterworks for town council to cost $60,000.

QUEBEC, QUE.—Ratepayers will vote on by-law to authorize borrowing of $225,000 for improvements to waterworks plant here. F. X. Chouinard is city clerk.

ROUYN, QUE.—Kegamione Development & Mining Co., Ltd. has been incorporated to mine, smelt and refine ores, metals and minerals with 3,000,000 shares of no par value, by Thomas A. Burgess, Harry M. Code, Arthur Ellis and others.

SHERBROOKE, QUE.—Stewart Construction Co. Ltd. has been incorporated to carry on the business of structural civil and mechanical engineer with $20,000 capital and 4000 shares of no par value by Helen Peer, Ada Lewis, Mary Martin and others.

REGINA, SASK.—A. N. Duff Construction Co. Ltd. has been incorporated to carry on the business of general contractor, constructor and engineer, with $50,000 capital stock by Adam N. Duff, Norman Link, Franklin W. Turnbull and others.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00
Pennsylvania, No. 2	35.00
Ohio, No. 1	43.00
Ohio, No. 2	35.00
Illinois, No. 1	43.00
Illinois, No. 2	35.00
Kentucky, No. 1	43.00
Kentucky, No. 2	35.00
Missouri, high grade	43.00
Missouri, No. 1	35.00
Maryland, No. 1	43.00 to 44.00
Maryland, No. 2	35.00
Georgia and Ala. No. 1	40.00 to 45.00
Georgia and Ala. No. 2	30.00 to 35.00

SILICA BRICK

Pennsylvania	43.00
Joilet, Ill.	52.00
Birmingham	49.00

MAGNESITE BRICK

(Per Net Ton)

9 x 4½ x 2½	65.00

CHROME BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	45.00

New Trade Publications

HEAT-RESISTING ALLOYS—Chrobaltic Tool Co., Detroit, has issued a pamphlet on heat-resisting and special alloys.

MELTING FURNACES—American Gas Furnace Co., Elizabeth, N. J., has issued a bulletin describing its regular and special melters, with full specifications and data.

MECHANICAL HANDLING—Link-Belt Co., Chicago, has reprinted an address by its chairman, Charles Piez on what mechanical handling has done and is doing for industry.

BENCH LATHES—Rivett Lathe & Grinder Corp., Brighton, Boston, has issued a bulletin illustrating and describing its bench lathe and accessories. A new junior lathe is given particular attention.

GRINDING WHEEL STANDS—Norton Co., Worcester, Mass., has issued a leaflet covering its grinding wheel stands, with motor in the base. Details are illustrated and engineering data and specifications given.

TRAMRAIL—A bulletin by the Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O., illustrates the efficiency of its method of handling painted metal parts into and from the baking ovens.

FORGINGS—National Machinery Co., Tiffin, O., has issued another of its series of machine talks. This deals with a preparatory upset for a drop hammer. Sliding dies are used, with special measures to assure alignment and uniform gripping.

MILLING MACHINES—Kearney & Trecker, Milwaukee, has issued another of its series of layouts, illustrating a method of castellating nuts. Blank nuts are fed into vertical hoppers and three cuts are made by the milling cutters below. Speed is limited only by the ability of the cutters to stand the feed and skill of the operator in loading the fixture.

HEATERS AND TANKS—Kewanee Boiler Co., Kewanee, Ill., has issued a catalog covering its water heaters, storage and pneumatic pressure tanks and similar products. It is illustrated and specifications for various types are given.

EXHAUST FANS—Fuerst-Friedman Co., Cleveland, has issued a bulletin on its electrically operated exhaust fans. It shows how an electric company transfers heated air from a transformer room to heat other portions of the plant.

ACID RESISTANT METAL—Duriron Co., Inc., Dayton, O., has issued several bulletins covering use of its acid-resisting metal in pumps and similar devices. It also has issued a leaflet covering its copper-base alloy metal for special uses in pumps and elsewhere.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	56	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	32½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	38	25½

(Note—Large jobbers obtain additional preferential discounts of 1 and 5 on black and 1½ and 5 on galvanized.)

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis.

THREADS AND COUPLINGS

Butt Weld

⅛ and ⅜-inch	+11	+39
½-inch	22	2
¾-inch	28	11
1 to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
7 to 8-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ⅜-inch	+19	+54
½-inch	21	7
¾-inch	28	12
1 to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
9 to 12-inch	16	2

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
¾-inch	+28	+40
1-inch	+34	+46
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+18	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

(Note—Large jobbers obtain additional preferential discounts of 1, 5 and 2½ on black and galvanized.)

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
3¼ to 3¾-inch	38½ off
4 to 13-inch	42 off

(Note—Additional discounts of 5 to 7 extra 5 per cents now being given.)

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	48 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

(Note—Additional discounts of 2 or 3 extra 5 per cents now being given.)

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent.....50 to 55 off
Carbon 0.30 to 0.40 per cent.....45 to 50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Outside diameter	Gage	Net prices per foot f.o.b. Pittsburgh Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅝-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths over 18 feet and for commercially exact lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-in thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per pound for width or diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	.10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c

Plates less than ¼-inch or lighter than 11 pounds per square foot.

Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c
Over 100 inches add .35c to width extras for plates ¼-inch thick and heavier	

GAGE

Plates not Exceeding 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 10.2 pounds per square foot, to and including 7.65 pounds per square foot .20c

Plates over 72 Inches Wide

Plates less than ¼-inch gage, to and including 3/16-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot .20c

Plates ordered 7.65 pounds per square foot .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept. or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection .....No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH OR DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.10c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (Including straight taper plates)

Additional extra 10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra 20c

Typical Installation in Well-Known Automobile Plant

WHY SHEET-SCRAP CAN BE PROFITABLY COMPRESSED

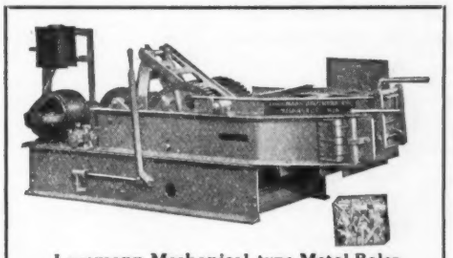
It commands at all times the best price;
It can be more conveniently stored;
It can be more economically handled;
It can be readily held for favorable markets;
It practically eliminates corrosion;
It permits of loading cars to capacity;
It saves much heat in remelting.

LOGEMANN SCRAP-METAL PRESSES

Hydraulic and Mechanical Types

LOGEMANN BROTHERS COMPANY
3126 Burleigh St. Milwaukee, Wis.

Also presses making crucible-size bricks of copper, brass, aluminum and other metals.



Logemann Mechanical-type Metal Baler

Please indicate character of scrap, quantity and heaviest gauge, when writing.

"Where-To-Buy"

A classified-by-products list of advertisers for the convenience of readers. If you don't find what you want, write us and we will tell you where to get it. ¶Index to advertisements will give you page number of any advertisers and by referring to advertisement you can get full particulars about products.

ABRASIVE (Polishing)
Norton Co., Worcester, Mass.

ACCUMULATORS
Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Wood, R. D., & Co., 400 Chestnut St., Philadelphia, Pa.

ACETYLENE (Dissolved)
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACETYLENE GENERATORS
Air Reduction Sales Co., 342 Madison Ave., New York City.
Oxweld Acetylene Co., 30 E. 42nd St., New York City.

ACETYLENE IN CYLINDERS—
Air Reduction Sales Co., 342 Madison Ave., New York City.
International Oxygen Co., Newark, N. J.
Prest-O-Lite Co., The, 30 E. 42nd St., New York City.

ACIDS (Pickling)
American Chemical Paint Co., Ambler, Pa.

ADAMITE ROLLS
American Adamite Co., The, 12th & Etna Sts., Pittsburgh, Pa.

AIR COMPRESSORS—See COMPRESSORS (Air)

AIR CUSHIONS (Power Press)
Marquette Tool & Mfg. Co., 1908 S. Kilbourne Ave., Chicago, Ill.

AIR FILTERS
Midwest Air Filters, Inc., Bradford, Pa.

ALLOYS
Electro Metallurgical Sales Corp., 30 E. 42nd St., New York City.
Lavino, E. J., & Co., Bullitt Bldg., Philadelphia, Pa.
Metal & Thermit Corp., 120 Broadway, New York City.
Titanium Alloy Mfg. Co., Niagara Falls, N. Y.
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM
Leavitt, C. W., & Co., 30 Church St., New York City.
Rogers Brown & Crocker Bros., Inc., 21 E. 40th St., New York City.

ALUMINUM (Vanadium)
Vanadium Corp. of America, 120 Broadway, New York City.

ALUMINUM TUBING
Summerill Tubing Co., Bridgeport, Pa.

ANGLES, TEES, CHANNELS—See STEEL (Structural)

ANNEALING BOXES
Farrell-Cheek Steel Foundry Co., Sandusky, O.
Pittsburgh Annealing Box Co., 801 Beaver Ave. N.S., Pittsburgh, Pa.
Pittsburgh Malleable Iron Co., 34th & Smallman Sts., Pittsburgh, Pa.
Riter-Conley Co., Oliver Bldg., Pittsburgh, Pa.
Smith, George H., Steel Casting Co., Milwaukee, Wis.
Union Steel Casting Co., 62nd and Butler Sts., Pittsburgh, Pa.
United Engineering & Foundry Co., Farmers Bank Bldg., Pittsburgh, Pa.
Zanesville Malleable Co., Zanesville, O.

APPRAISALS
McKee, Arthur G., & Co., 2422 Euclid Ave., Cleveland, O.

AUCTIONEERS
Segal, Herbert "Action," 800 Broad St., Newark, N. J.

AXLES
Bethlehem Steel Co., Bethlehem, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Champion Machine & Forging Co., The, 3675 E. 78th St., Cleveland, O.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
National Tube Co., Frick Bldg., Pittsburgh, Pa.
Transue & Williams Steel Forging Corp., Alliance, O.

BABBITT METAL
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.

BALING PRESSES
Cox & Sons Co., The, Bridgeport, N. J.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.

BAND SAWS (Metal Cutting)
Huther Bros. Saw Mfg. Co., 1190 University Ave., Rochester, N. Y.

BANDS AND HOOPS (Galvanized Strips)
Sharon Steel Hoop Co., Sharon, Pa.

BANDS (Iron)
Bethlehem Steel Co., Bethlehem, Pa.

BANDS (Welded Iron and Steel)
Akron-Selle Co., Akron, O.

BAR BENDERS
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.

BARGES (Steel)
American Bridge Co., 71 Broadway, New York City.

BARRELS (Steel)
Cleveland Wire Spring Co., The, 1281 E. 38th St., Cleveland, O.

BARROWS
Sterling Wheelbarrow Co., Milwaukee, Wis.

BARS (Alloy)
Armstrong, Sir W. G., Whitworth & Co., Ltd., Kinnaird House, Pall Mall East, London, S. W. 1, England.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Wheelock, Lovejoy & Co., Inc., 128 Sidney St., Cambridge, Mass.

BARS (Concrete Reinforcements)
Bethlehem Steel Co. Bethlehem, Pa.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Gulf States Steel Co., Brown-Marx Bldg., Birmingham, Ala.
Laclede Steel Co., Arcade Bldg., St. Louis, Mo.
Migret, Rene, 7 Boulevard Defontaine, Charleroi, Belgium
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

BARS (Iron and Steel)
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Lockhart Iron & Steel Co., Pittsburgh, Pa.
Morris, Wheeler & Co., 30th and Locust Sts., Philadelphia, Pa.
Penn Iron & Steel Co., Creighton, Pa.

BARS (Steel)
Armstrong, Sir W. G., Whitworth & Co., Ltd., Kinnaird House, Pall Mall East, London, S. W. 1, England.
Bethlehem Steel Co., Bethlehem, Pa.
Bliss & Laughlin, Inc., Harvey, Ill.
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Central Alloy Steel Corp., Massillon, O.
Donner Steel Co., Inc., P. O. Box 1000, Buffalo, N. Y.
Franklin Steel Works, Franklin, Pa.
Illinois Steel Co., 208 S. LaSalle St., Chicago, Ill.
Illinois Steel Warehouse Co., 1319 Wabansia Ave., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Migret, Rene, 7 Boulevard Defontaine, Charleroie, Belgium.
Pacific Coast Steel Co., Rialto Bldg., San Francisco, Calif.
Republic Iron & Steel Co., Youngstown, Ohio.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.
Tennessee Coal, Iron & Railroad Co., 1351 Brown-Marx Bldg., Birmingham, Ala.
Youngstown Sheet & Tube Co., Youngstown, O.

BARS, STEEL (Electric Furnace)
Timken Roller Bearing Co., The, Canton, O.

BEAMS, CHANNELS, ANGLES, ETC.
Bethlehem Steel Co., Bethlehem, Pa.
Blystone Mfg. Co., Ironton St., Cambridge Springs, Pa.
Carnegie Steel Co., 431 Carnegie Bldg., Pittsburgh, Pa.
Illinois Steel Co., 208 So. LaSalle St., Chicago, Ill.
Inland Steel Co., First National Bank Bldg., Chicago, Ill.
Jones & Laughlin Steel Corp., Pittsburgh, Pa.
Migret, Rene, 7 Boulevard Defontaine, Charleroi, Belgium
Phoenix Iron Co., The, 20 So. 15th St., Philadelphia, Pa.
Ryerson, Jos. T., & Son, Inc., 16th and Rockwell Sts., Chicago, Ill.

BEARINGS (Ball)
Hoover Steel Ball Co., Ann Arbor, Mich.
New Departure Mfg. Co., The, Bristol, Conn.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Journal)
Cadman, A. W., Mfg. Co., 2816 Smallman St., Pittsburgh, Pa.
Hyatt Roller Bearing Co., Newark, N. J.
Timken Roller Bearing Co., The, Canton, Ohio.

BEARINGS (Motor)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Roller)
Hoover Steel Ball Co., Ann Arbor, Mich.
Hyatt Roller Bearing Co., Newark, N. J.
Norma-Hoffmann Bearings Corp., Stamford, Conn.

BEARINGS (Tapered Roller)
Timken Roller Bearing Co., The, Canton, Ohio.

BEARINGS (Thrust)
Hoover Steel Ball Co., Ann Arbor, Mich.
Norma-Hoffmann Bearings Corp., Stamford, Conn.
Timken Roller Bearing Co., The, Canton, O.

BELT-FASTENERS
Bourne-Fuller Co., The, 1912 Scranton Rd., Cleveland, O.

BELT LACING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.

BELTING (Leather)
Chicago Rawhide Mfg. Co., 1305 Elston Ave., Chicago, Ill.

BENCHES AND FRAMES (Drawing)
Morgan Construction Co., Worcester, Mass.

BENCHES & FRAMES (Wire Drawing)
Vaughn Machinery Co., Cuyahoga Falls, Ohio.

BENDING AND STRAIGHTENING MACHINES
Cleveland Punch & Shear Works Co., 3917 St. Clair Ave., Cleveland, O.
Hinman, D. A., & Co., Sandwich, Ill.
Kardong Bros., 346 Buchanan St., Minneapolis, Minn.
Logemann Brothers Co., 3126 Burleigh St., Milwaukee, Wis.
Long & Allstatter Co., Hamilton, O.
Sutton-Abramsen Engineering Co., Park Bldg., Pittsburgh, Pa.

BENZOL AND TOLUOL RECOVERY PLANTS
Koppers Construction Co., The, Union Trust Bldg., Pittsburgh, Pa.

BILLETS (Alloy and Carbon Steel)
Andrews Steel Co., Newport, Ky.
Central Alloy Steel Corp., Massillon, O.

BILLETS (Die Stock Steel)
Andrews Steel Co., Newport, Ky.

BILLETS (Forging)
Andrews Steel Co., Newport, Ky.
Bethlehem Steel Co., Bethlehem, Pa.
Central Alloy Steel Corp., Massillon, O.
Heppenstall Forge & Knife Co., 47th and Hatfield Sts., Pittsburgh, Pa.
Midvale Co., The, Nicetown, Philadelphia, Pa.
Wood, Alan, Iron & Steel Co., Widener Bldg., Philadephia, Pa.

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